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A Review of the United States Role in International Biomedical Research and Communications

International Health and Foreign Policy

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Mary E. Corning

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A Review of the United States Role in International Biomedical Research and Communications

International Health and Foreign Policy

Mary E. Corning

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The truth is, that medicine, professedly founded on observation, is as sensitive to outside influences, political, religious, philosophical, imaginative, as is the barometer to the changes of atmospheric density. Theoretically it ought to go on its own straightforward inductive path, without regard to changes of government or to fluctuations of public opinion. But look a moment while I clash a few facts together, and see if some sparks do not reveal by their light a closer relation between the Medical Sciences and the conditions of Society and the general thought of the time, than would at first be suspected.

Oliver Wendell Holmes

PREFACE

DURING THE COURSE OF serving as a career scientist in the Federal Government, I have been engaged in international scientific activities in institutions of science and foreign policy. The scientific settings were the National Bureau of Standards, the National Science Foundation and now the National Library of Medicine. The foreign policy milieu was the Department of State in 1958–60 when I worked with Dr. Wallace R. Brode, Science Advisor to the Secretary of State. This was the period following the Soviet launching of the first earth satellite, Sputnik, which stimulated increased United States interest in and support of science. New efforts were undertaken to "integrate" science and foreign policy by establishing a Science Office in the Department of State and assigning Science Attachés in our Embassies abroad.

My thirty years with the Federal Government have been varied and of long enough duration to observe both innovation and repetition. International science activities are subject to cyclical enthusiasm; each new Administration rediscovers the potency but not necessarily the realities of international science.

Viewed as a whole, the relationship of science and foreign policy may be congenial or incompatible. There are three underlying difficulties: (1) the oftentimes competitive rather than complementary roles of the Executive and Legislative branches in foreign affairs, (2) the blurring of authority, responsibility, and accountability within the Executive branch, and (3) the difference between science and diplomacy in concept, methodology, and execution. Superimposed on all of these are fiscal considerations—either expressed through appropriation channels by Congress and/or through budgetary controls by the Office of Management and Budget.

Scientific objectives and humanitarian goals have remained relatively constant and consistent throughout the years. The political and socioeconomic settings have changed. Since World War II, scientific collaboration with scientifically sophisticated allies has been expanded to the Communist States of Eastern Europe, then to the

READEX FICHE

developing world; and now in some instances to countries with whom we do not have formal diplomatic relations.

Trends seem to suggest that mechanism may take precedence over substance in both the initiation and the execution of international science. Some relationship of foreign policy with science is necessary but remains nebulous. There are public and foreign policy issues which have a direct bearing on science; science, in turn, has a role, admittedly difficult to define and quantify, in the development of public and foreign policy.

It has been twenty years since there has been a detailed assessment of international biomedical research and biomedical information; and that was conducted by the Subcommittee on Reorganization and International Organizations of the United States Senate Committee on Government Operations, and was chaired by Senator Hubert Humphrey.

In the fall of 1976, I proposed to the Brookings Institution a study on international biomedical research and communications within the context of international health and foreign policy which would include an historical perspective, concepts, mechanisms, and operations. In the material which follows, I present a review of the legislative and organizational setting for biomedical research and communications; the international functions and activities of the National Institutes of Health and the National Library of Medicine; highlights of past studies; the independent, sometimes parallel and oftentimes conflicting activities of the White House, Federal agencies, and the Congress; examples which illustrate the blurring of responsibility and the conflict between the Legislative and Executive branches of our Government and also within the Executive branch; mechanisms for the conduct of international activities; and an analysis of the past to prepare for the future.

President Carter's Administration in 1977 initiated an effort to study international health activities and to develop a "new United States international health policy." There are corresponding initiatives by Congressional Committees and the Department of Health, Education, and Welfare.

Currently being reviewed within both the Executive and Legislative branches of our Government are topics and issues which are not new. They revolve around the following:

1. Why does the United States engage in international health activities?
2. Who establishes priorities? Who coordinates?

3. The relationship between international health programs and foreign policy.
4. Legislative authority.
5. Level of funding.
6. Stability of intent and program.
7. Mechanisms of support and execution.

There are policy, programmatic, and operational aspects to all of these topics. They have been studied over the years, but they are still with us. Their staying quality does not mean they are insolvable, but rather that the "solutions" are time dependent and reflect carefully preserved agency prerogatives and the attitudes and relative power of individuals in leadership positions. What has transpired over a period of time is worthy of thoughtful documentation and analysis in order to separate those issues which must always remain time dependent from those which may be resolved by decision and action. My emphasis is on the Federal sector, but this in no way is a lack of recognition of the accomplishments of the private sector.

Thus, I hope that "clashing a few facts together" may be useful to both public officials and scientists and may lessen the time and effort being spent reassessing old issues and proposing old ideas, a process which results not in progress but in repetition and duplication. The following information may provide some measure of what the Government has and has not done, can and cannot do, and thus lead to a determination by others of what it should and should not do. Policy can be addressed by placing today's issues into the perspective of yesterday and the prospective of tomorrow.

MARY E. CORNING

ACKNOWLEDGMENTS

I am grateful to the Director of the National Library of Medicine, Martin M. Cummings, M.D., for nominating me to the Brookings Institution, and to the Brookings Institution for my appointment as a Federal Executive Fellow for six months, January–July, 1977. As a Fellow in the Advanced Study Program, I performed the major portion of the research for this study. I wish to express my appreciation to Walter G. Held, Director of the Advanced Study Program, for the professional courtesies extended to me.

I am indebted to the many individuals with whom I had thoughtful discussions during the course of this study and who were gracious both in terms of time and information. They are identified in Appendix I.

Dr. G. Burroughs Mider, Dr. Henry van Zile Hyde, Dr. Sune Bergstrom, Dr. John Seal, Dr. Clifford Pease, Dr. Norman Howard-Jones, Dr. Paul Ehrlich, Dr. Abraham Horwitz and Dr. Hildrus A. Poindexter have read various chapters, and Dr. Martin M. Cummings has read all the chapters. These individuals have offered constructive comments and suggestions which I have accepted and tried to implement. However, the final responsibility for content rests with me.

My staff, Mrs. Beulah Kidwell and Mrs. Regina Broadhurst provided skilled and steadfast support in the preparation of the manuscript. Mr. Robert Mehnert was helpful on editorial matters and instrumental in obtaining a number of illustrations; Mr. Roger Gilkeson and Mr. Daniel Carangi assisted in matters related to printing and publication.

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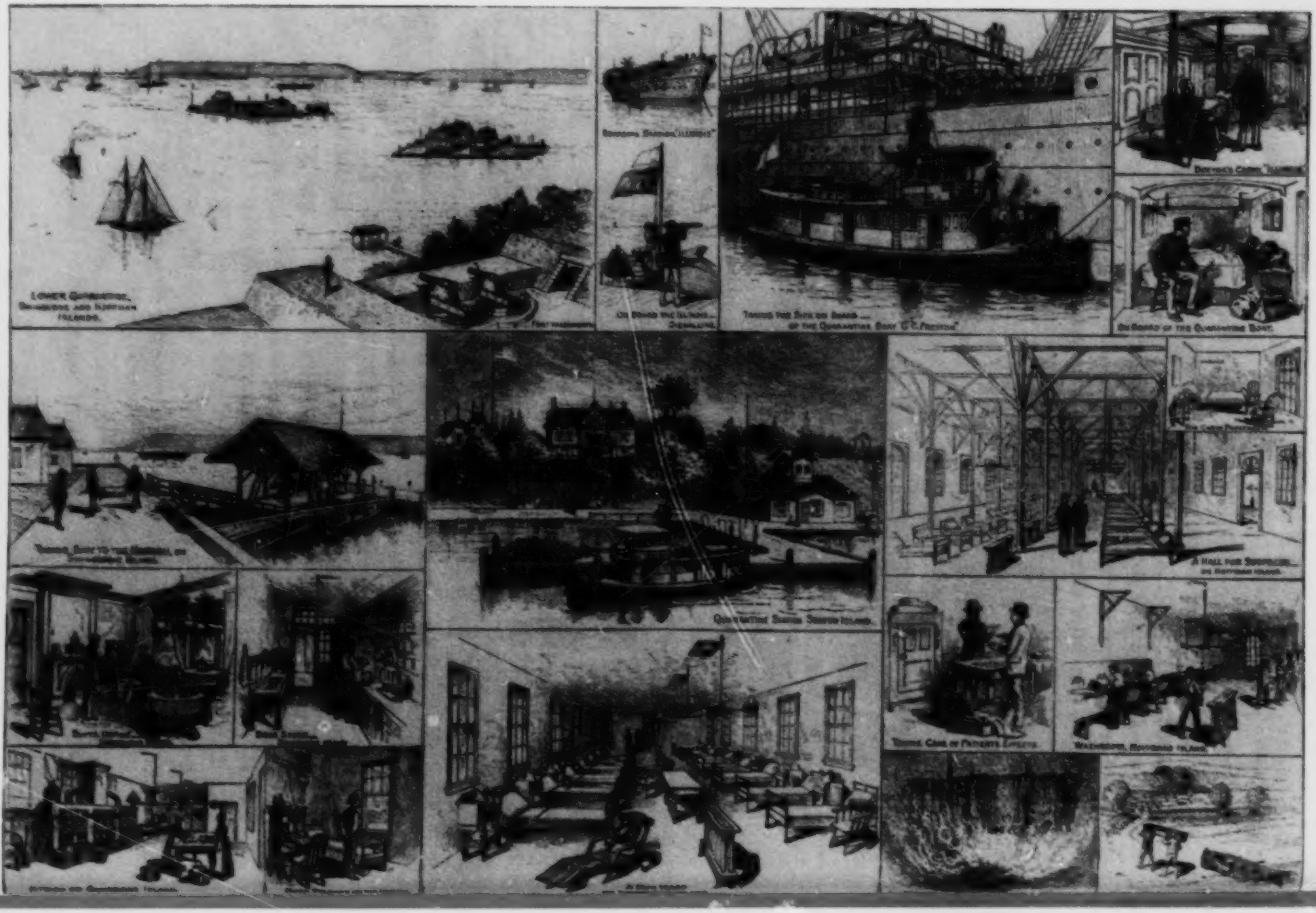
LOWER QUARANTINE, SWINBURNE AND HOFFMAN ISLANDS.
On Board the Illinois... Signalling.
Taking the Sick on Board ... of the Quarantine Boat
On Board of the Quarantine Boat.
Quarantine Station Staten Island.
A Hall for Steerage... on Hoffman Island.
Taking Care of Patients' Effects.
Washhouse, Hoffman Island.
Kitchen on Swinburne Island.

Chapter I

THE UNITED STATES AS A DEVELOPING COUNTRY

> *In the four quarters of the globe, who reads an American book? or goes to an American play? or looks at an American picture or statue? What does the world yet owe to American Physicians or Surgeons?*
>
> SYDNEY SMITH (*1*)*

TWO HUNDRED YEARS AGO, the United States was a "developing country" in its efforts to identify, define, and accept as a Federal responsibility programs directed toward lessening or eliminating domestic health problems. Within these last two centuries the United States has been engaged in activities to control epidemics, initiate research to determine the cause and nature of diseases, interest the physician in public health work, and organize public health activities at federal, state, and local levels. At the turn of the century, there were campaigns against the house fly, the common drinking cup, the common towel; campaigns for the separation of ice from drinking water, the abolition of cuspidors on trains; legislation for pure food (the first was enacted by the Kansas Legislature in 1889 (2)), drugs, water, milk; activity for social and housing reforms; collection of accurate vital statistics; and health education and instruction of the public.

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* See page 367 for references.

Left, Sketches of the New York quarantine establishment—scenes on Swinburne, Hoffman, and Staten Islands—Drawn by A. Berghaus (Harper's Weekly 31:733, Oct. 8, 1887). (Courtesy of the National Library of Medicine)

The existence of a relationship involving health, research, communications, and economic well-being is not a new phenomenon. Nor is the fact that the Federal Government has directly and indirectly been involved in this process of shaping the nature and extent of these relationships. Many of the Federal Government's current international health activities are an extension of domestic responsibilities which are directed at problems common, then and now, to other countries. Thus, it may help to recall not only some of the issues confronted, the resources developed, and the commitments made within our own country, but to note that these have taken place over an extended period of time.

Although the following brief history of domestic issues touches only the surface, and its emphasis is on the Federal sector, it does illustrate the United States struggle for health care, the conflicts, the debates and the achievements in public health, research, and biomedical communications. This will then form a useful setting for the examination of international issues.

From the Marine Hospital Service to the Public Health Service

A Federal program of providing medical care to seamen, a one-room bacteriological laboratory, and a collection of books in the Surgeon General's Office (Army) have evolved over the last one hundred and fifty years into a health agency at the national level —the Public Health Service (PHS). The United States Marine Hospital Service is now the Public Health Service; and within the PHS, the bacteriological laboratory is now the National Institutes of Health (NIH), and the collection of books is the National Library of Medicine (NLM).

United States Marine Hospital Service—The First 100 Years

The Fifth Congress of the United States on November 13, 1797, passed an "Act for the Relief of Sick and Disabled Seamen" which was signed by President Adams on July 16, 1798. This law provided medical assistance to sailors and some protection to the residents, but its origins also rested in motives pertaining to commerce.

Under this Act, each seaman on a United States ship or vessel arriving from a foreign port was taxed twenty cents per month,

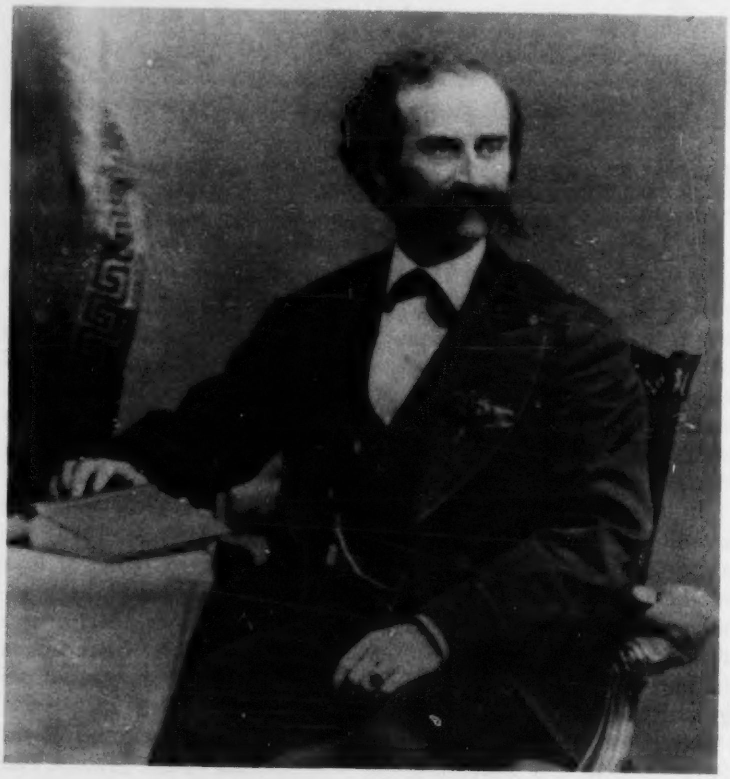
Tenement life in New York—Mayor Grace's tour of inspection—Drawn by W. St. John Harper (Harper's Weekly 25:696, Oct. 15, 1881). (Courtesy of the National Library of Medicine)

and the monies became part of the United States Treasury. The President was then authorized to use these funds "to provide for the temporary relief and maintenance of sick or disabled seamen in the hospitals or other proper institutions . . ." in the district of origin. This was, in essence, a prepaid medical plan. The Act also included an optimistic provision that any surplus funds could be combined with private donations for the erection of hospitals for the seamen.

In 1870, the tax on the seamen was raised to forty cents per month. In a seventy-five year period, from 1798 to 1872, the expenses of $11.2 million far outstripped collected funds of $6.8 million. Only through Congressional deficiency appropriations totaling $4.7 million was the Marine Hospital Service (MHS) able to meet its expenditures. (3) The individual taxation was changed in 1884 to a tonnage tax. This was abandoned in 1906 when Congress assumed responsibility with appropriated funds.

In 1869 Dr. John Shaw Billings, then head of the Library of the Surgeon General's Office (Army), was detailed to the Secretary of the Treasury to inspect and report upon the Marine Hospital Service throughout the country. He prepared a plan for its reorganization, which was adopted. The Secretary of the Treasury's Report for 1870 stated that "the condition of the marine hospitals has been improved during the past year. This result is largely due to Dr. J. S. Billings, of the Surgeon-General's Office, who has visited nearly all of them, and through whose advice many important changes have been made." Dr. Billings apparently removed the Marine Hospital Service from politics and substituted organization and health care discipline. (*4*)

Dr. Billings' plan was the basis of the Act of 1870, "An Act to Reorganize the Marine Hospital Service, and to Provide for the Relief of Sick and Disabled Seamen." This led to the appointment of a Supervising Surgeon of the Marine Hospital Service of the



Dr. John M. Woodworth (1837–79), first Supervising Surgeon of the Marine Hospital Service (1871–79). (Courtesy of the National Library of Medicine)

United States under the direction of the Secretary of the Treasury and was the beginning of some centralization.

Dr. John M. Woodworth, the first Supervising Surgeon, lamented that demands for health care were greater than resources. This led to restrictions such as the exclusion of seamen with chronic or incurable diseases; no one could be treated beyond four months; and only those helpless but expected to be back to work in a short time were given "Relief."

During the Fiscal Year (FY) 1872, the Marine Hospital Service provided 405,814 days of hospital relief to 12,302 sick and disabled American seamen. This averaged 32.9 days for each patient cared for in a hospital. In addition, 854 seamen were given medication; thus, a total of 13,156 seamen were treated. Of the number treated, 4% died. The total cost of the service (excluding erecting and repairing hospital buildings) was $396,263.11, or an average of $0.97 per day for each patient. (*5*) This was a decrease in health care costs from the $1.04 daily average in FY 1871.

Dr. Woodworth recommended constructing all hospitals of wood, destroying them after ten or fifteen years, and then building new ones. This was a sanitary and economic measure. He considered that treatment had been subordinated to architectural design, and this construction-reconstruction process would produce favorable results in the treatment of diseases and injuries. A permanent building of brick or stone would be reserved for housing the heating apparatus and the laundry; New York and San Francisco were entitled to a residence for the surgeon which would be completely separate from the hospital. (*6*)

Dr. Woodworth's preoccupation with providing health care with adequate and proper geographical allocation of resources continued. He noted that "maintaining a hospital is like conducting a hotel: neither can be done to the greatest profit or advantage without patrons enough to fully employ the resources of the establishment." (*7*)

But, even within this setting, preventive medicine and research would have their place. At Dr. Woodworth's personal invitation, each medical officer of the Service was encouraged to bring "his special knowledge to bear upon the general subject for the general good." Those medical officers of the Service who could take a broad view, correlate, and deduce were to study and report on the conditions of sea life in order to devise measures to preserve the sailors' health and protect them from disease. There would be two benefits. One, the demand for hospital relief would be less if the

Steerage passengers of a European steamer being examined by health officers—Drawn by A. Berghaus (Harper's Weekly 31:732, Oct. 8, 1887). (Courtesy of the National Library of Medicine)

causes were reduced; two, commerce would benefit if seafaring were an attractive occupation instead of one where a sailor's average working life was twelve years. (*8*)

Attention was drawn to selecting the proper vehicle for transmitting information. Medical and surgical topics and technical treatment were for the medical periodical. Other subjects, not usually found in a medical periodical, would be appropriate for an official document when they related to the execution of an agency's mission. Thus, Marine Hospital Service documents could include those matters relating to sailors exclusively as well as those matters connecting the MHS to public health, as affected by or through the sailor. This was relating the specific to the general good. (*9*) Contributed papers included in the 1874 Annual Report were "American Commerce and the Service" by Frank W. Reilly, M.D., "Diseases of River-men—their Causes and Prevention" by Horace Wardner, M.D., "Preventable Disease on the Great Lakes" by James M. Allen, M.D., "Syphilis: The Scourge of the Sailor and the Public Health" by Fred R. Sturgis, M.D., and "The Yellow-Fever Epidemic of 1873" by Frank W. Reilly, M.D.

Dr. Woodworth's reports continued to give the flavor of the struggle for funds and appropriate facilities. As the United States faced threats of cholera, smallpox, yellow fever and bubonic plague, Congress authorized, in 1874, an investigation into the causes of epidemics. The Surgeon General of the Army was given responsibility for cholera, and the Supervising Surgeon of the Marine Hospital Service (MHS) responsibility for yellow fever. This was the first specific entry of the Federal Government into medical research ordered by the Congress. (*10*) Movements to develop a national quarantine service, the debate on a centralized versus decentralized governmental role, a severe yellow fever epidemic in Mississippi in 1878, and the passage of the first National Quarantine Act in 1878 are all detailed elsewhere. (*11*) (*12*)

These were also years of debate on a national health organization and a national quarantine system. In 1889, the Public Health Service Commissioned Corps was established by law, providing a mobile resource of health professionals who could be assigned to duty anywhere at the request of the state(s).

Competition from the National Board of Health

In an effort to move effectively and quickly to combat epidemics, Congress established the National Board of Health on March 3, 1879—"An Act to Prevent the Introduction of Infectious and Contagious Diseases into the United States and to Establish a National Board of Health." The National Board, in its first year, made appointments and organized activities which began on April 2, 1879, including special investigations relating to the causes and prevention of diseases. Dr. James L. Cabell of the University of Virginia was President of the National Board, and Dr. John Shaw Billings, the Director of the Library of the Surgeon General's Office, Vice President.

The operations of the Board were reviewed and approved at a November 1879 meeting of the American Public Health Association (APHA). Two of the APHA specific resolutions were:

> That the investigations which have been commenced by the board are approved and should be continued, and that similar investigations should be undertaken by it into the consideration and prevention of other diseases as well as yellow fever . . . That Congress should appropriate sufficient funds to enable the board to employ the best talent and apparatus in such scientific and practical inquiries. (*13*)

Dr. James L. Cabell (1813–89), University of Virginia, President of the National Board of Health (1879). (Courtesy of the National Library of Medicine)

Current Congressional requests that the National Academy of Sciences study, review or evaluate matters of health had an early antecedent in the Constituting Act for the National Board of Health. It directed the "Academy of Science" to assist the Board of Health in its report to Congress on "its transactions, together with a plan for a national public health organization." The plan, which would examine the subject of quarantine, both maritime and inland, would have the benefit of prior consultation with sanitary organizations and state sanitarians. Relationships and regulations for State and local systems of quarantine were to be determined within a national system. (*14*)

Members of the Academy Committee were S. Weir Mitchell, Francis A. Walker, J. J. Woodward, Wolcott Gibbs, George Engelman, George F. Barker, Henry Draper, C. F. Chandler and William B. Rogers, President of the Academy. The Committee endorsed continuation of the special investigations underway and recommended additional ones in cholera, malaria, typhoid, typhomalaria fevers, diphtheria and cerebro-spinal meningitis. Sanitary surveys were also encouraged. "The only limitation which should be placed on these investigations and surveys should be the amount of funds appropriated for that purpose. It is believed that, for the present, the sum to be annually allowed for such investigations and sanitary surveys should be $30,000." (*15*) The expenditures of the National Board of Health for miscellaneous investigations March-December 31, 1879 were $1,772.40; for special investigations and surveys January through June, 1880, $21,500; and July 1, 1880 through June 30, 1881, $30,000. (*16*)

The National Board sought and supported scientists and physicians outside of its staff for its investigations. This was the beginning of the research grant concept. Some preliminary results of these investigations appeared as appendices to the 1879 Report and included: "Organic Matter in the Air—A Preliminary Report on an Investigation Concerning the Best Method for Determining the Amount of Organic Matter in the Air" by Professor Ira Remsen, The Johns Hopkins University. Another was "Report on Deteriorations, Adulterations and Substitutions of Drugs" by C. Lewis Diehl, State Agricultural College, Lansing, Michigan. Mr. Diehl began by saying that when he undertook this effort for the National Board, he had not previously paid much attention to the problem, and therefore "he had no clear conception of the labor involved in the task, nor of the time that might be required for its completion." Tullio S. Verdi, M.D. of Washington, D. C. investigated "Cattle Disease in Relation to the Health of Man and in Political Economy."

There were a number of inspections summarized as in "Report on Malignant Diphtheria in Northern Vermont" by Dr. Elisha Harris and "Report on Quarantine at New Orleans" by Dr. A. N. Bell. Sanitary surveys were conducted in Hudson County, New Jersey and Memphis, Tennessee (the latter under the chairmanship of Dr. Billings).

Competition existed between the Board and the Marine Hospital Service; and in 1882 the appropriations for the National Board contained language restricting it to cholera, smallpox, and yellow fever. Activities of the Board included national quarantine, scientific research, vital statistics (Dr. Billings' influence) and sanitary surveys.

In 1883, Congress did not renew the quarantine appropriation and the quarantine authority reverted to the Marine Health Service under its Act of 1878. The Board received appropriations of $10,000 for a few years and then existed in name without power or money; the law creating it was repealed by the Quarantine Act of 1893.

Dr. Billings had anticipated that the Board would be ill-fated. He commented in 1880, a year after the creation of the Board, that:

> . . . its creation was in one sense premature. Forced into existence in an emergency, it was only to be expected that as soon as this emergency had passed it would find itself without the support of an educated public opinion, and upon such an opinion alone, under our form of government, can such an organization securely rest . . . . (*17*)

Changes in Name and Scope (1909–   )

In this century, the Marine Hospital Service has undergone changes of name, changes of organizational setting, and enlargement of scope and function to become a health agency at the national level, incorporated into a Cabinet-level department. The Marine Hospital Service became the Public Health and Marine Hospital Service in 1902. There was considerable debate on how health should be organized within the Federal establishment and two economists, J. P. Norton and Irving Fisher, both of Yale University, advocated a national department of health. Mr. Fisher became chairman of The Committee of One Hundred on National Health of the American Association for the Advancement of Science. In 1909, Mr. Fisher said that "more pains are now taken to protect the health of farm cattle than of human beings" and he urged the building of "more and greater laboratories for research in preventive medicine and public hygiene." (*18*)

Congress empowered the Public Health Service (PHS), the name given the Public Health and Marine Hospital Service in 1912, to ". . . study and investigate the diseases of man and conditions influencing the propagation and spread thereof, including sanitation and sewage and the pollution . . . of the navigable streams and lakes . . . " The law had great importance in opening up the whole field of public health to research by the Government and recognizing it as an appropriate Federal activity. (*19*) To cope with the emergency created by the influenza pandemic, the Public Health Reserve Corps was established in 1918. Under a Reorganization Act, April 3, 1939, the Public Health Service was transferred from the Treasury Department to a newly-created Federal Security Agency (FSA).

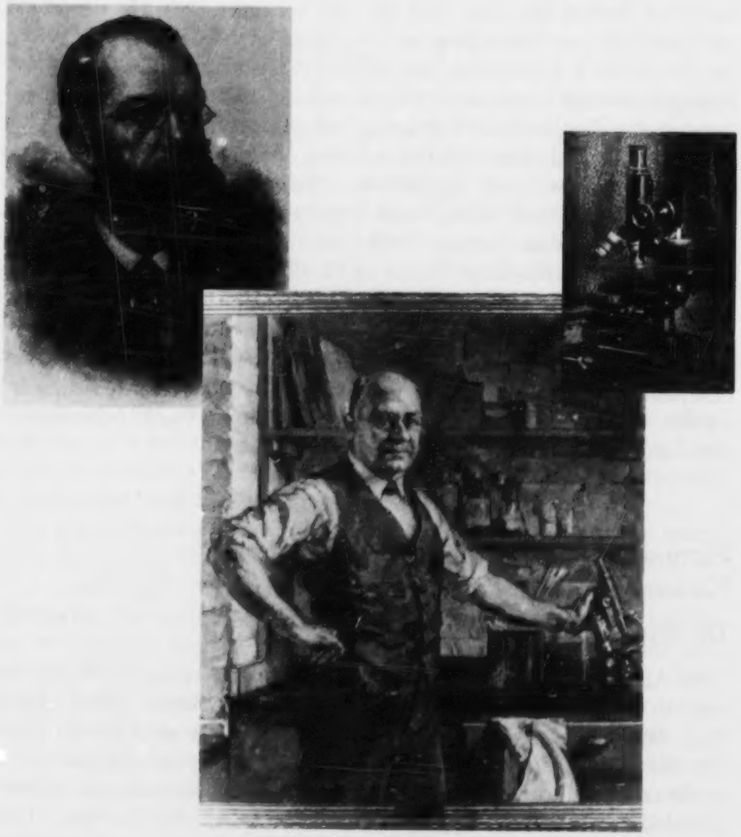
Interesting and informative accounts of the Public Health Service have been written by Schmeckebier, (*20*) Leigh, (*21*) Williams, (*22*) and Furman. (*23*) These trace in greater detail the history of the PHS and its functions relating to disease control, quarantine, research, loan of personnel, and assistance to the States. The scope and functions of the Public Health Service have evolved within the context of the broader issue of whether there should be a national health program. Dr. Thomas Parran, Surgeon General of the Public Health Service, in his Foreword to the PHS FY 1944 Annual Report to Paul V. McNutt, Administrator of the Federal Security Agency, mentioned some of the deliberations which had occurred during the first half of this century. (24) He described the work of the Committee on the Costs of Medical Care (1927), the President's Committee on Economic Security (1935), and the National Health Conference (1938), all contributing in some measure to the Public Health Service Act of 1944 (PL 78–410). This Act revised and consolidated existing public health legislation. When the Department of Health, Education, and Welfare was created in 1953, the Public Health Service became the health agency of that Department. During 1980 Education has become a separate Department and the Department of Health, Education, and Welfare is now known as the Department of Health and Human Services.

As of 1980, the Public Health Service encompasses six health agencies: the Food and Drug Administration; Health Resources Administration; Alcohol, Drug Abuse and Mental Health Administration; Center for Disease Control; Health Services Administration; and the National Institutes of Health.

From a Bacteriological Laboratory to the National Institutes of Health

The Hygienic Laboratory

In August 1887, a bacteriological laboratory was established in one of the rooms of the Marine Hospital at Staten Island, New York under the directorship of Dr. Joseph Kinyoun. Prior to this, Dr. Kinyoun had been sent by the Marine Hospital Service on a study tour to Europe to learn more of experimental medicine, which included the work of Professor Koch on infectious diseases. The new apparatus in Dr. Kinyoun's laboratory "was modeled after those used in the laboratory of Dr. Koch, of the Imperial German health board, and is supplied with Zeiss's latest improved microscope objectives and microphotographic apparatus." (25) Using this microscope, Dr. Joseph Kinyoun and Dr. S. T. Armstrong secured material from patients on the steamships Alesia and Britannia for bacteriological investigations, and they identified the cholera organism. (26)



Left, Professor Robert Koch of Berlin (1843–1910); right, microscope modeled after that of Professor Koch of Berlin and used by Dr. Joseph Kinyoun; bottom, Dr. Joseph Kinyoun (1860–1919), Director, Hygienic Laboratory (1887–99). (Courtesy of the National Library of Medicine)

Left, Dr. John B. Hamilton (1847–98), the second Supervising Surgeon General of the Marine Hospital Service (1879–91); top, the Marine Hospital at Stapleton, Staten Island, the site of the Hygienic Laboratory started in August 1887; bottom, the North Building of the Hygienic Laboratory, March 18, 1904. (Courtesy of the National Library of Medicine)

Dr. John B. Hamilton had become Supervising Surgeon of the Marine Hospital Service after Dr. Woodworth's death in 1879. In his 1888 Report, Dr. Hamilton recognized not only the importance of preventive medicine but that bacteriological work was necessary for effective health programs. Dr. Hamilton declared that the scope of the work was increasing and unquestionably useful, and intimately associated with the successful administration of national quarantine, public sanitation and hygiene. He, therefore, recommended that the Laboratory be transferred to Washington, D.C., so that it could be properly housed, equipped, supervised and useful not only to the Service but to the general public. (*27*) Dr. Hamilton repeated his recommendation again in 1889 and included a summary of the work conducted by Assistant Surgeon Kinyoun. The latter ended with the statement "The room at present available for the laboratory is entirely too small, and no space is available for photography." (*28*)

In 1890, Professor Koch of the Hygienic Institute, the University of Berlin, had announced a cure for tuberculosis. Experiments to test the "tuberculin" (which had been obtained through the President of the United States) were done by Assistant Surgeon H. D. Geddings in the Marine Hospital Service with disappointing results. On January 2, 1891, Dr. Kinyoun returned a second time to work in Professor Koch's laboratory to learn techniques and the most advanced theories relating to bacteriological research. Subsequently, Dr. Kinyoun also visited the Pasteur Institute to study methods used in the prevention of rabies.

Dr. Kinyoun's Hygienic Laboratory was moved to Washington, D. C. in 1891. Dr. Kinyoun's report on the status of the Laboratory ended with the following:

> Since the laboratory has been removed from the Marine Hospital, New York, to the national capital, it has now the room and equipment requisite for proper work, and is available for general bacteriological investigations. It is hoped that appropriations commensurate with its importance will be forthcoming for its further enlargement. The subjects of hygiene and demography have not as yet received the proper amount of attention from our legislative bodies. This laboratory, situated and equipped as it is, should form the nucleus for one national in its character, and developed on the same lines as those established by Germany, France and England. (*29*)

By 1894, the Hygienic Laboratory, the precursor of the National Institutes of Health, was conducting research, providing staff for field operations in public health, and training commissioned officers of the Public Health Service.

The National Institutes of Health

In 1930, the Hygienic Laboratory became the National Institute of Health (NIH), and seven years later the Rocky Mountain Laboratory, which had been purchased by the Federal Government from Montana in 1932, was made part of the NIH. The National Cancer Institute was established in 1937 and followed by four more in 1948—Heart; Dental Research; Microbiology; and Experimental Biology and Medicine—and the National Institute of Health became the National Institutes of Health. The categorical approach to disease, the authority not only to conduct research but to support research by grant and contract, and to award fellowships, coupled with strong Congressional support have created a research establishment of world renown. The NIH today has eleven institutes, a Clinical Center, four research divisions, the John E. Fogarty International Center for Advanced Study in the Health Sciences, the National Library of Medicine and a $3.19 billion budget.

NIH's outstanding reputation is a result of its sustained leadership, the high caliber of its scientists, and the record of their accomplishments. The history of Federal support and impact on biomedical sciences, and the unique government/academic relationship which established United States preeminence in biomedical research have been described and documented by Dr. G. Burroughs Mider, Dr. James Shannon, and Dr. Donald Fredrickson.

Dr. Mider examined the course of events that transformed a small bacteriological laboratory dependent upon and derivative from European science to a United States Federal institution (NIH) which currently supports approximately two-thirds of the total biomedical research in the United States. He concluded from his analysis that one needs the pluralistic system for support and execution, but within that system, continuing Federal support is necessary. (*30*)

Dr. Shannon has written that "The simply stated goal of the NIH has always been to develop a science base for the formulation and solution of medical problems" and that as NIH evolved, "each new research program had a clear need based in an operational responsibility of the developing PHS." According to Dr. Shannon, NIH grew somewhat apart from the general stream of service-oriented PHS activities, but it continued to be a laboratory base

Top, Cornerstone laying of the National Institute of Health administration building, June 30, 1938; Left to right: **Secretary of the Treasury, Henry Morgenthau, Jr., Mrs. Luke J. Wilson (Mr. Wilson donated the site), Surgeon General Thomas Parran;** bottom, **the National Institutes of Health (1979) (aerial photograph). (Courtesy of the National Institutes of Health)**

Directors of The Hygienic Laboratory (1887–1936), the National Institute of Health (1937–48) and the National Institutes of Health (1948–): Dr. Joseph H. Kinyoun (1887–99), Dr. Milton J. Rosenau (1899–1909), Dr. John F. Anderson (1909–15), Dr. George W. McCoy (1915–37), Dr. Lewis R. Thompson (1937–42), Dr. Rolla E. Dyer (1942–50), Dr. William H. Sebrell, Jr. (1950–55), Dr. James A. Shannon (1955–68), Dr. Robert Q. Marston (1968–73), Dr. Robert S. Stone (1973–75), and Dr. Donald S. Fredrickson (1975–present). (Courtesy of the National Institutes of Health) and emerged as a blend of fundamental, applied and developmental activity. (*31*) Dr. Shannon's leadership coupled with the interests of Congressman John Fogarty and Senator Lister Hill enabled NIH to grow at a rapid pace over a period of two decades. NIH's programs and their academic impact within the last 30 years have been characterized by Dr. Shannon in the following time periods: 1945–1955, post World War II developments; 1955–1967, growth and maturation; and 1967–1975, emergent problems. (*32*) The latter stem from what Dr. Shannon has called the inconstancy of Federal purpose illustrated by (1) a shift from long-term to short-term emphasis on goals of Federal support programs (2) the influence of special interest groups which deter developing broad and productive research programs and (3) severe problems in the manpower field with a three-way conflict among (a) NIH and academic institutions, (b) Health, Education, and Welfare and Office of Management and Budget and (c) the Congress. (*33*)

Dr. Fredrickson has characterized the economic eras in NIH's development as: 1887–1945, parochial; 1946–1963, national expansion (1946–1956, strategic sectoring; 1957–1963, exuberant growth); 1963–1977, maintenance and selective growth. According to Dr. Fredrickson, one current concern is "how to maintain the most effective scientific enterprise within the total resources that emerge from the social strategies." (*34*) The "demand for public governance of science" and legal, ethical, and social issues may have an impact on the choice and conduct of research. To achieve a delicate balance between research and society with an appropriate decision-making mechanism will be a necessary, difficult and unending task. A second issue is the "relationship of NIH, as the principal biomedical research agency of the Federal Government, to the health service community—and the extent to which NIH can, or should, take responsibility for activities that lie at the boundary between the conduct of research and the delivery of health services." (*35*)

The National Institutes of Health is a unique resource for research in biomedicine and the life sciences. The challenge of the years that lie ahead will be to maintain NIH's tradition of excellence and innovative leadership in the pursuit of knowledge while at the same time dealing with the realities of finite resources in an arena of competing societal values. An important component of striking this balance will be to determine what is the proper role of the research enterprise represented by NIH in relation to the delivery of health care services.

From the Library of the Surgeon General's Office (Army) to the National Library of Medicine

Early American Literature

Although the United States depended upon European sources for many of its medical practices and literature, biomedical and health information played a part in the earliest days of health care and research in the United States. The Pennsylvania Hospital established in Philadelphia, 1751, was the first general hospital in the United States; and it in turn established the first public medical library in 1763. The first United States medical journal, *Medical Repository* (1797) preceded the establishment of the Marine Hospital Service by one year.

In the early 1800s, the United States was suffering some of the pangs faced by developing countries today. It had a desire to create a "national literature" and a need for biomedical information. This is true today in some developing countries whose resources are in many cases devastatingly poor. The *raison d'etre* for establishing in the United States the *Philadelphia Journal of the Medical and Physical Sciences* in 1820 was a sharp barb from Sydney Smith of Edinburgh, published in the frontispiece of the new Journal:

> In the four quarters of the globe, who reads an American book? or goes to an American play? or looks at an American picture or statue? What does the world yet owe to American Physicians or Surgeons?

This launched the United States on a course of an ever-increasing production of journals to add to the world's biomedical literature. (*36*) It was only fifty years after the beginning of the *Medical Repository* that the American Medical Association (AMA) appointed a Committee on Medical Literature to prepare an annual report on the general character of periodical medical publications in the United States. The AMA's intent was to encourage and maintain a national literature. As a result of a detailed examination of existing medical publications, the Committee's report cited as one of the major failings of United States medical literature that it "set English portraits of disease in American frames." The Committee admitted that American contributions were insignificant in anatomy and physiology but more substantive in operative surgery.

An early endeavor in international communications was the *Bulletin of the Public Health* issued by the Supervising Surgeon

General of the Marine Hospital Service (MHS) under the National Quarantine Act of April 29, 1878. These were compilations of abstracts of reports on plague, yellow fever, smallpox, and cholera from the United States and abroad. This was during the period 1878–79 when there were epidemics of plague in Russia, and a yellow fever epidemic in the United States. The original publication of these reports on sheets by the "papyrographic process" lacked, according to Dr. Hamilton, the Supervising Surgeon General of the MHS, permanency of record and ease of broad dissemination. Accordingly, Dr. Hamilton received approval from the Secretary of the Treasury to print and republish the "Bulletins." (37)

John Shaw Billings

At the national level some of the early interaction between health care, investigation into causes of disease, and biomedical information was due to the widespread interests of some of the leading figures of the day. One of these was Dr. John Shaw Billings. He

Father in his library at 94 Gay St

Dr. John Shaw Billings (1838–1913) in the library of his home, indexing journal literature for Index Medicus.

was Head of the Library of the Surgeon General's Office, inspected (on a special assignment to the Secretary of the Treasury) the Marine Hospital Service, was President of the American Public Health Association, and Vice President of the National Board of Health. One of the National Board of Health's important accomplishments in its first year of existence was the adoption of a scientific nomenclature of disease developed by Dr. Billings who was in active correspondence with the Royal College of Physicians of London, then making the decennial revision of its own nosological scheme. Dr. Billings also conducted a sanitary survey for the National Board of Health in Memphis in 1880.

In 1875, Dr. Billings published "A Bibliography of Cholera," a comprehensive index to the subject as part of a United States Government report on the cholera epidemic in the United States. (*38*) He issued in 1879 his first major work to cope with the biomedical literature, *Index Medicus*, to be followed in 1880 by *Index Catalogue. Index Catalogue* was a massive catalog of all the materials in the Library of the Surgeon General's Office. *Index Medicus* was a subject and author-based index concerning the contents of biomedical periodicals. This was the beginning of a bibliographic apparatus for United States physicians, but which has subsequently been accepted by the international medical community.

The National Library of Medicine

A collection of books in the Office of the Surgeon General of the Army (1836) became the Army Medical Library in 1922 and the Armed Forces Medical Library in 1952. The Library underwent a number of name changes while it was within the military, and its operating activities had an impact far greater than on the military medical scene alone. It became the legislatively-established National Library of Medicine (NLM) in 1956 as part of the Public Health Service in HEW. This history has been detailed by Miss Schullian and Dr. Rogers. (*39*)

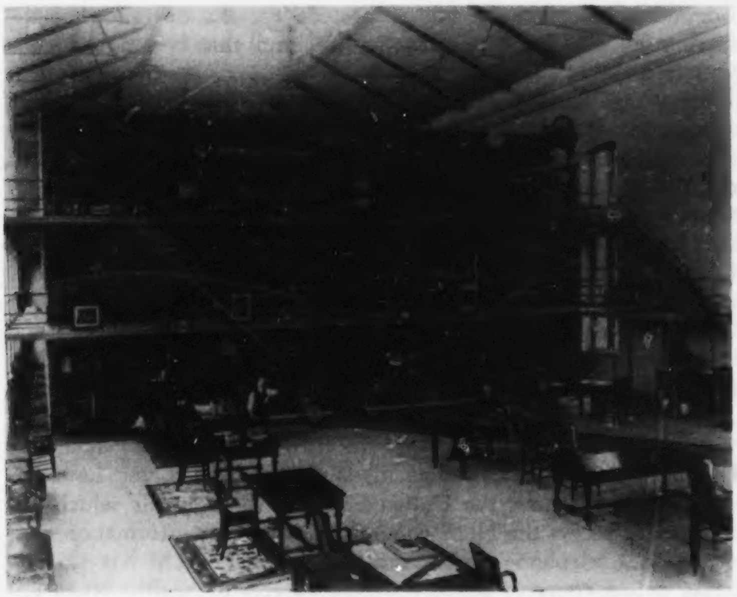
Dr. Billings believed that the value of the medical literature depended on a subject access for a physician whether he did research, teaching or was in practice. Recognition of the need for information and the concept of a national responsibility for a library were embodied in the original functions performed by the Library of the Surgeon General's Office. Services included the provision of literature to other libraries for their professional readers and the preparation of some specialized bibliographies in response to requests

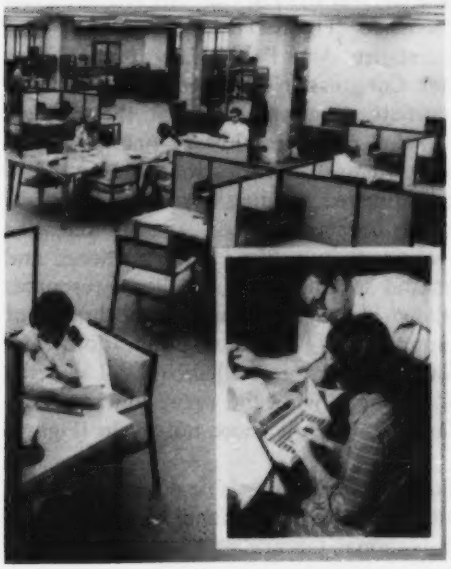
Dr. Robert Fletcher (1823–1912) and Dr. Fielding H. Garrison (1870–1935) continuing the preparation and production of Index Medicus **(circa 1905). (Courtesy of the National Library of Medicine)**

for detailed information. The philosophy of Dr. Billings is maintained today with a subject access to information and the intimate involvement of the health community in the identification of its needs and useful products. The task has increased in size and scope, and the techniques have changed from manual to advanced computer and communications technology; but the intellectual process remains the same.

The United States Commission on Organization of the Executive Branch of the Government (Hoover Commission) played a role in the eventual creation of the National Library of Medicine. The Commission's Medical Services Task Force was chaired in 1947-49 by Dr. Theodore G. Klumpp who has described the medical and political interactions that resulted in the creation of the National Library of Medicine. (*40*) The report of the Medical Services Task Force to Congress included a specific chapter, "A National Library of Medicine."

On March 13, 1956 Senators Lister Hill and John F. Kennedy introduced a bill (S. 430) "to Promote the Progress of Medicine and to Advance the National Health and Welfare by Creating a National Library of Medicine." The Committee on Foreign and Interstate





Top, Reading room of the Library of the Surgeon General's Office (circa 1890); left, reading room of the National Library of Medicine (1979). Insert shows computer terminal for direct online and immediate access to bibliographic services. This is a standard component of the reading room for providing improved information services to patrons. (Courtesy of the National Library of Medicine)

Commerce amended the bill to provide for the operation of the Library by the Public Health Service, and this became effective in July 1956.

Since that time, the National Library of Medicine has acquired a number of functions atypical for a library. To cope with the ever increasing volume of the biomedical literature and to respond quickly and accurately to the information needs of the health professional, the National Library of Medicine developed a computerized bibliographic information storage and retrieval system (MEDLARS). Approximately 2,500 journals from the estimated 20,000 journals in the world's biomedical literature are indexed for the MEDLARS data base. MEDLARS became operational in 1964 and its primary use at that time was the computer production of NLM's *Index Medicus* and other bibliographic publications. NLM quickly added to this feature the provision of specialized information services to the individual. In 1971, the current (2½ years) data base became available in an online mode (MEDLINE). Over 1,000 institutions throughout the United States have terminals which can be used to access the NLM computer directly for information purposes via a telephone communications network. NLM has 15 data bases online covering many different aspects of health; NLM annually provides about one and one-half million searches from its computer system containing over four million citations and abstracts from approximately 3,000 journals (Figure 1).

The Medical Library Assistance Act, Public Law 89-291, was enacted by the United States Congress in October 1965. This Act enabled the NLM to (1) initiate programs to assist the nation's medical libraries and (2) develop a medical library network, with the establishment of Regional Medical Libraries to link NLM with local institutions. The Act authorized funding for construction of facilities, training in medical library sciences, special scientific projects, research and development in medical library science and related fields, improvement and expansion of the basic resources of medical libraries and related instrumentalities, establishment of regional medical libraries, support for biomedical publications, and regional branches of the National Library of Medicine. NLM acted to implement all of these programs, with the exception of establishing its own regional branches which it chose not to do (Figures 2 and 3).

In 1967, the PHS Audiovisual Facility was transferred to the National Library of Medicine to become the National Medical Audiovisual Center. In 1967, the National Library of Medicine initiated, as a result of recommendations from the President's Science Advisory Committee, (*41*) a Toxicology Information Program. After a joint resolution by Congress, PL 90–456 was signed in August 1968 by President Lyndon B. Johnson establishing the Lister Hill National Center for Biomedical Communications as part of the National Library of Medicine.

The NLM is not a traditional library but employs computers, photographic techniques, interactive television, and satellites for the rapid transmission of biomedical health information in many new modalities and formats. Thus, the NLM is essentially a national health and biomedical information resource.

Figure 1. Computerized searches performed online by United States Centers using the National Library of Medicine computer system, MEDLARS/MEDLINE.

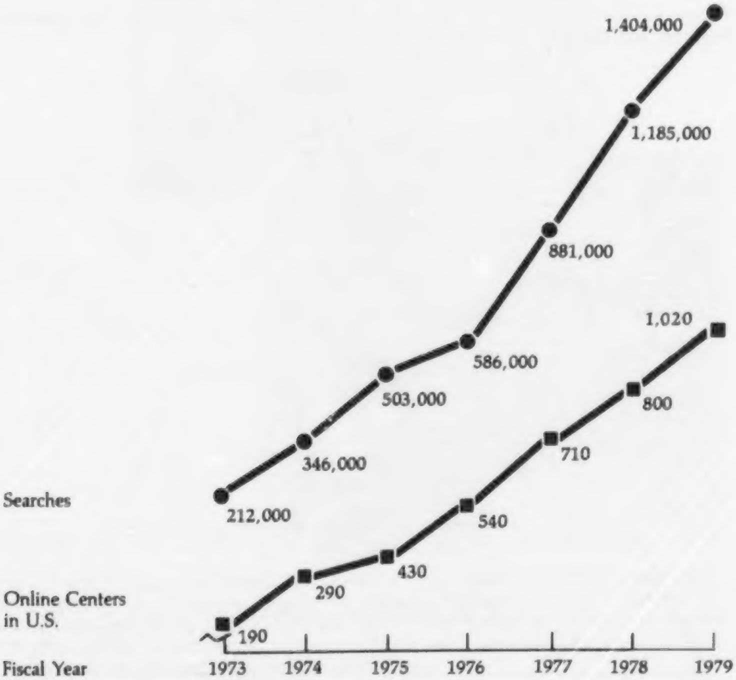


Figure 2. The Regional Medical Library network as a component of the United States national biomedical communications system.

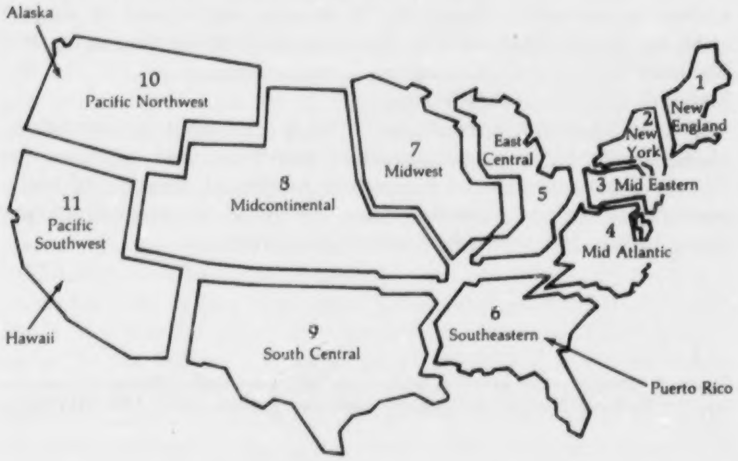
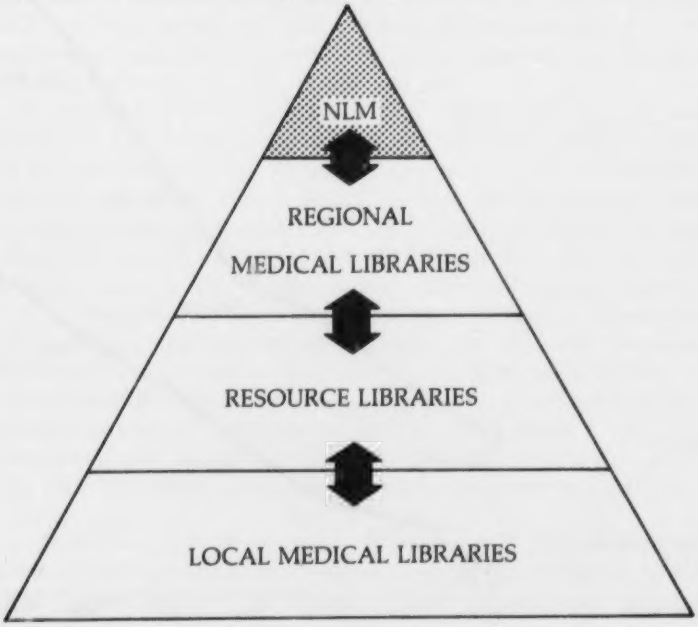
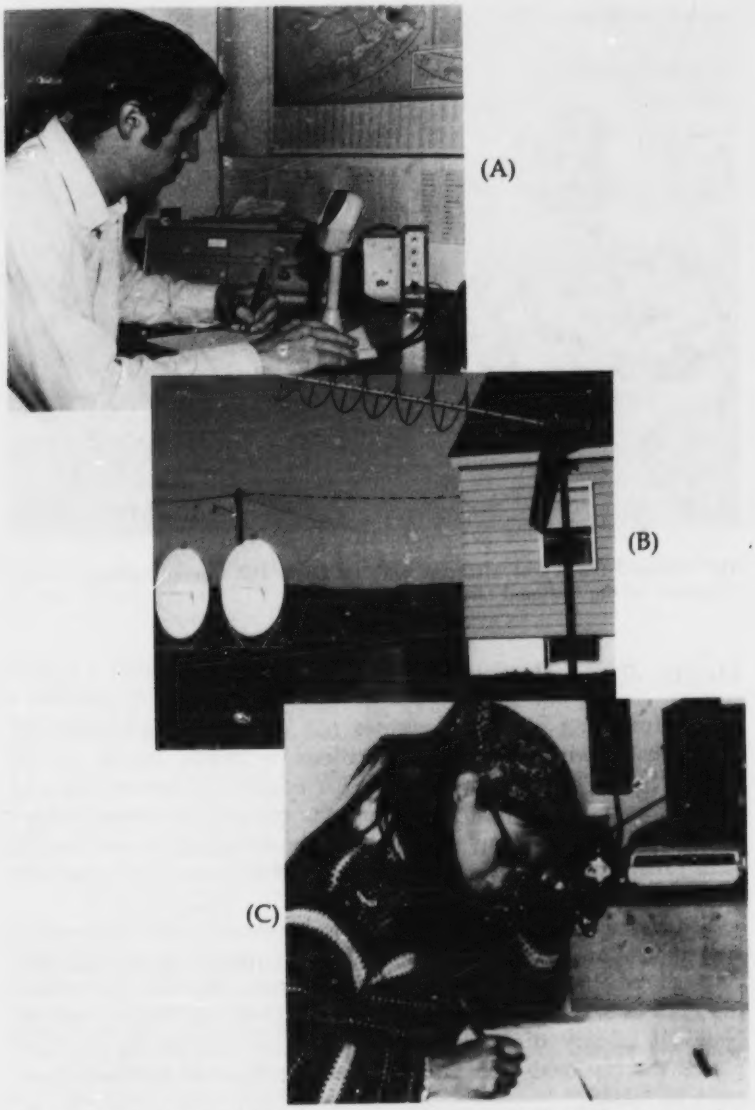
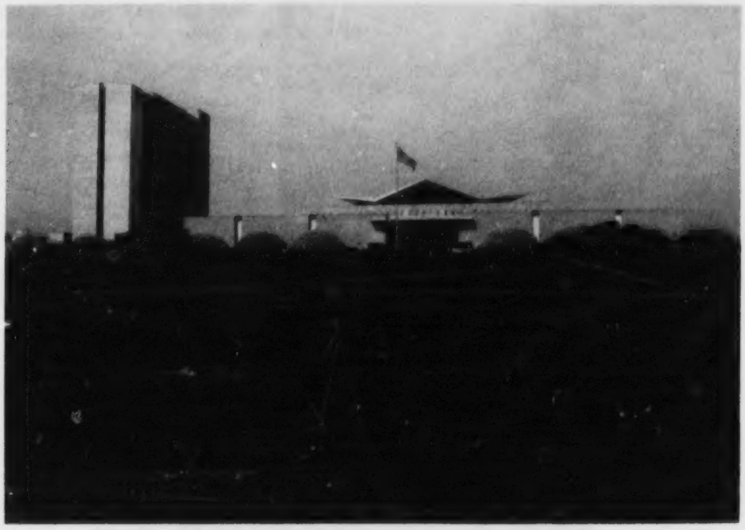


Figure 3. Hierarchical service relationships among local, resource, and regional libraries and the National Library of Medicine.





The National Library of Medicine's Alaska experimental satellite communications project. Dr. Brian A. Beattie in Tanana Hospital (A) is connected by satellite linkage using simple antenna (B) to health aide in Allakeket, Alaska (C). Experiment began with satellite ATS–1, and subsequently used ATS–6. (Courtesy of the National Library of Medicine)



The National Library of Medicine with its Lister Hill Center Building (1980). (Courtesy of the National Library of Medicine)

Health, Research, and Communications

The foregoing history illustrates not only the relationships of biomedical science and communications to public health in the United States but the implications for broader socioeconomic and political issues. The social forces and the complex interrelationships currently faced by many developing countries have some identity with early United States public health problems and our country's efforts to resolve them.

Today, responsibility for biomedical research and biomedical communications within the Federal Government is concentrated primarily within HEW and the Public Health Service and within the PHS in two entities—the National Institutes of Health and the National Library of Medicine. The 1966 reorganization of HEW placed the National Library of Medicine within the National Institutes of Health.

National health expenditures in 1979 in the United States were estimated at $218.1 billion.* Of this, 1.4% was NIH funding for research and development ($3.0 billion) and 0.02% was NLM funding for biomedical communications activities ($41 million). Although accounting for a small percentage of the total national health expenditures, these two agencies represent significant and unique resources with an impact that cannot be measured in fiscal terms alone. With regard to health research and development, NIH represented 42% of national health research and development, and 68% of Federal health research and development. (*42*)

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* Source: Health Care Financing Administration, with adjustments for R & D by National Institutes of Health.

The latest actual data available for the overall Federal scientific effort is 1978. NIH accounted for approximately 10% of Federal funds for research and development, 23% of Federal funds for research, and 23% of Federal funds for foreign research and development, including the Special Foreign Currency Program (*43*) (*44*) (Tables 1, 2 and 3).

It is meaningful to compare the funding of communications (scientific and technical information) to that for research and development. (*45*) Scientific and technical information (S&TI) is dependent on research and development (R&D), whether one is discussing the generation of information, the dissemination of information, or the application of information. This relationship can be quantified.

Table 1.—Federal Funds for Research in Millions of Dollars
[Obligations]

	FY 76 [1]		FY 77 [2]		FY 78 [3]		FY 79 (est) [3]	
	$	%	$	%	$	%	$	%
NIH	1,779.9	22.6	1,988.1	22.5	2,232.6	22.9	2,561.8	23.5
HEW	2,162.9	27.2	2,433.7	27.5	2,740.7	28.1	3,141.5	28.8
Other	3,930.5	49.9	4,419.4	50.0	4,777.6	49.0	5,185.8	47.6
	7,873.3		8,841.2		9,750.9		10,889.1	

Based on:

[1] National Science Foundation, *Federal Funds for Research, Development, and Other Scientific Activities, Fiscal Years 1976, 1977 and 1978, vol. XXVI, Detailed Statistical Tables, Appendixes C and D,* Surveys of Science Resources Series, (Washington, D.C.: U.S. Government Printing Office, 1977).

[2] National Science Foundation, *Federal Funds for Research, Development, and Other Scientific Activities, Fiscal Years 1977, 1978 and 1979, vol. XXVII, Detailed Statistical Tables, Appendixes C and D,* Surveys of Science Resources Series, (Washington, D.C.: U.S. Government Printing Office, 1978).

[3] National Science Foundation, *Federal Funds for Research, Development, and Other Scientific Activities, Fiscal Years 1978, 1979 and 1980, vol. XXVIII, Detailed Statistical Tables, Appendixes C and D,* Surveys of Science Resources Series, (Washington, D.C.: U.S. Government Printing Office, in press).

Table 2.—Federal Funds for Total Research and Development in Millions of Dollars
[Obligations]

	FY 76[1]		FY 77[2]		FY 78[3]		FY 79 (est)[3]	
	$	%	$	%	$	%	$	%
NIH	2,022.6	9.7	2,243.9	9.4	2,580.9	9.8	2,960.6	10.0
HEW	2,545.9	12.3	2,787.3	11.6	3,207.3	12.1	3,665.4	12.4
Other	16,190.1	78.0	18,897.9	79.0	20,626.1	78.1	22,950.0	77.6
	20,758.6		23,929.1		26,414.3		29,576.0	

Based on:

[1] National Science Foundation, *Federal Funds for Research, Development, and Other Scientific Activities, Fiscal Years 1976, 1977 and 1978, vol. XXVI, Detailed Statistical Tables, Appendixes C and D,* Surveys of Science Resources Series (Washington, D.C.: U.S. Government Printing Office, 1977).

[2] National Science Foundation, *Federal Funds for Research, Development, and Other Scientific Activities, Fiscal Years 1977, 1978 and 1979, vol. XXVII, Detailed Statistical Tables, Appendixes C and D,* Surveys of Science Resources Series (Washington, D.C.: U.S. Government Printing Office, 1978).

[3] National Science Foundation, *Federal Funds for Research, Development, and Other Scientific Activities, Fiscal Years 1978, 1979 and 1980, vol. XXVIII, Detailed Statistical Tables, Appendixes C and D,* Surveys of Science Resources Series, (Washington, D.C.: U.S. Government Printing Office, in press).

Federal funding of S&TI is equal to about 2% of Federal R&D funding. By contrast, the Federal funding for biomedical information is equal to about 3% of Federal biomedical research and development funds. Biomedicine's preferred position results from the existence of the NLM, where there is a concentrated effort for funding and performance. The NLM's budget is approximately 6% of total Federal S&TI funding.

Approximately 43% of the cumulated budget of the Library over the past ten years has been made available through grant or contract to external institutions. Domestically NLM has been visible and effective not because of a large expenditure of funds, but by its substantive impact in providing services to the nation.

The NIH and the NLM are unique in substantive and geographic terms; one concerned with research, and the other with communications. Domestically they are organizationally, administratively, and functionally located within the PHS. An examination of the international programs of NIH and NLM provides an excellent opportunity to determine how research and communications relate to international health considerations.

Table 3.—Federal Funds for Foreign Research and Development Including Special Foreign Currency Program (SFCP) in Thousands of Dollars

[Obligations]

	FY 76[1]				FY 77[2]				FY 78[3]				FY 79 (est)[3]			
	Total		SFCP		Total		SFCP		Total		SFCP		Total		SFCP	
	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	%
NIH	18,124	24.8	2,319	8.8	25,857	29.3	3,892	13.5	28,523	23.2	5,462	20.2	31,391	25.2	4,030	10.4
HEW	29,361	40.2	10,512	40.0	36,606	41.5	12,777	44.2	38,724	31.4	12,542	46.4	46,004	37.0	16,867	43.6
Other	25,614	35.0	13,450	51.2	25,722	29.2	12,244	42.3	55,921	45.4	9,006	33.3	46,940	37.8	17,775	46.0
	73,099		26,281		88,185		28,913		123,168		27,010		124,335		38,672	

Based on:

[1] National Science Foundation, *Federal Funds for Research, Development, and Other Scientific Activities, Fiscal Years 1976, 1977 and 1978, vol. XXVI, Detailed Statistical Tables, Appendixes C and D*, Surveys of Science Resources Series (Washington, D.C.: U.S. Government Printing Office, 1977).

[2] National Science Foundation, *Federal Funds for Research, Development, and Other Scientific Activities, Fiscal Years 1977, 1978 and 1979, vol. XXVII, Detailed Statistical Tables, Appendixes C and D*, Surveys of Science Resources Series (Washington, D.C.: U.S. Government Printing Office, 1978).

[3] National Science Foundation, *Federal Funds for Research, Development, and Other Scientific Activities, Fiscal Years 1978, 1979, and 1980, vol. XXVIII, Detailed Statistical Tables, Appendixes C and D*, Surveys of Science Resources Series, (Washington, D.C.: U.S. Government Printing Office, in press).

Chapter II

A NATIONAL RESOURCE WITH INTERNATIONAL IMPACT

The Public Health Service (PHS)

PHS Expertise and International Health Needs

THE ADMINISTRATIVE SETTING FOR the Public Health Service (PHS), its organization, functions, services and its relationships to the Department of State and the various United States technical assistance agencies changed through the years.

PHS Reorganization Order No. 1, issued by the Federal Security Administrator on December 30, 1943, established four administrative units: Office of the Surgeon General, National Institute of Health, Bureau of Medical Services, and Bureau of State Services. In addition to the overall administration of the PHS, the Surgeon General was given two major international responsibilities: the professional supervision of PHS officers detailed for duty with other governmental agencies, and the relationship of the PHS with international organizations which had public health functions. (*1*)

The PHS Act of 1944 (PL 78-410), which consolidated and revised the numerous PHS authorities, reaffirmed PHS functions of foreign and interstate quarantine. Title II, Administration, Section 214 (a)-(d) authorized the detail of personnel to other Federal or State departments and to nonprofit institutions. These activities were carried out with personnel and resources from the Foreign Quarantine Division and its Foreign Health Relations Section. Title III, General Powers and Duties of Public Health Service, Part A, Research and Investigations, Section 301 (a)-(g) authorized the Surgeon General to conduct and to fund research, to provide fellowships for both United States and foreign individuals and to disseminate information. Title VI, Temporary and Emergency Provisions and Amendments and Repeals, Section 604, authorized the conduct of emergency health and sanitation activities, near military or naval reservations within or outside the United States in connection with World War II. (2) This authority was used for activities in Liberia in 1944, for example. This section was deleted with the passage of PL 88–443 on August 18, 1964. (3) Appendix II lists the current legislative basis for PHS international activities.

In responding to requests from other Federal Agencies or Departments, the PHS provided advice, performed studies and engaged in operational activities in many different areas of the world. Oftentimes, these PHS functions were in conjunction with a mission relating to broad socioeconomic problems. A few examples illustrate the scope, diversity, and skills provided by the PHS. According to Dr. Ralph Chester Williams (4) the first PHS study of health administration outside the continental United States was a survey of incidence of illness and public medical care in Puerto Rico. After examining the conditions conducive to malaria, hookworm disease, and tuberculosis which were aggravated by extremely low income levels, the PHS team recommended changing the pattern of organization and methods of operation for the public health and medical care systems in Puerto Rico.

Another example of PHS international service was participation with representatives from England, Australia, and Russia in a detailed Indian study (Bhore Committee) of public health and medical relief. After World War II, at the request of the War Department, a Social Security Mission, with Dr. Joseph W. Mountin representing the PHS, went to Japan to study the health and welfare structure and to recommend changes in the medical and social insurance systems and in public health organization and administration. This was part of the reconstruction program for Japan.

The Public Health Service collaborated with the United States Government agencies in the interchange of health and medical information and in efforts to control and eradicate disease. PHS officers were active in planning, establishing, and directing the Pan American Sanitary Bureau (PASB). From 1902-36, the Surgeons General of the PHS, Dr. Walter Wyman, Dr. Rupert Blue, and Dr. Hugh S. Cumming, were the Directors of the PASB.

The Interdepartmental Committee on Scientific and Cultural Cooperation was established in 1938 by Congress to provide scientific, technical and professional assistance to Latin America and the Philippines. (5) The Committee had a budget for fellowships and the assignment of health personnel to other American republics; and these funds were spent by the PHS through the Pan American Sanitary Bureau until 1945.

During 1941–45 the PHS detailed medical officers, sanitary engineers, and technicians to other American republics to work under PASB direction. Lima, Peru was the field headquarters, and services were available to other Republics for surveys of water supplies and sewage systems, supervising anti-plague activities, investigating public health supplies, initiating studies of communicable diseases, and other similar activities. Subsequent to 1945, the PHS used the Interdepartmental Committee funds directly for such activities.

In 1944, the President-Elect of the Republic of Liberia requested assistance from the President of the United States to solve many of its health problems, and, in particular, preventable diseases which were a handicap to the economic and social development of the country. PHS personnel were members of United States missions not only to Liberia but to Yemen, Greece, and Iran.

The International Bank for Reconstruction and Development organized an economic mission to Colombia, South America in 1949 in which Dr. Mountin of the PHS participated. This was a study of capital requirements for government functions and services for the following decade. Health needs were included along with those for education, agricultural and industrial development, police protection, courts of justice, and highways. Dr. Mountin outlined proposals for the most appropriate health organization consistent with available resources emphasizing the relationship of the health of the population to the productivity of the country.

International Health Offices in PHS and State

The Department of State (State) and the Public Health Service each established international health offices in the same year and with common staff. In January 1945, State requested the detail of a PHS officer to organize an International Health Affairs Branch in the Division of International Labor, Social, and Health Affairs of the Office of International Trade Policy. Dr. Louis L. Williams, Jr. was detailed in May 1945 and was joined in August 1945 by Dr. James A. Doull and Dr. Henry van Zile Hyde of the Public Health Service.

Early in 1945, the Foreign Health Relations Section of the Foreign Quarantine Division in the Bureau of Medical Services was transferred to the Office of the Surgeon General and was designated the Office of International Health Relations (OIHR). Its first Director was Dr. Doull.

The Acting Secretary of State in a letter in 1945 to the Federal Security Administrator wrote:

> (1) the Department of State views the Public Health Service as the official health agency of this Government and looks to it for advice and assistance on international health problems . . . . (*6*)

This letter provided the basis for incorporating statements of PHS/State relationships into OIHR functions and, in particular, enabled the OIHR to assist in drafting charters and position papers regarding the proposed United Nations International Health Organization.

The functions ascribed to the OIHR were:

> (1) cooperation with the Department of State with respect to international health agencies in the collection and distribution of global epidemiological information, representation at international health conventions, and the promotion of personnel exchange;
>
> (2) supervision of the Liberian Health Mission;
>
> (3) the development of public health attache work in selected foreign areas;
>
> (4) the establishment of plans, in cooperation with the Department of State, for furnishing medical care to American citizens connected with official foreign ports [*sic*];
>
> (5) the supervision of all Public Health Service work in international health relations in cooperation with such agencies as the Pan American Sanitary Bureau, the United Nations Relief and Rehabilitation Administration, the Food and Agriculture Organization, the International Labor Organization, Office International d'Hygiène Publique, and the proposed International Health Organizations of the United Nations. (*7*)

Limitations on the number of personnel restricted the scope of the OIHR but the OIHR proposed augmenting its staff by requesting a budget of $34,750 in appropriated funds for Fiscal Year 1947. Plans included establishing a Research and Information Section to acquire data on medical and public health conditions abroad as well as on educational and research institutions in the health field. Another program activity selected for greater time and attention was receiving and assisting foreign physicians and public health workers—more than 100 in 1946. (*8*)

Noteworthy was the movement of people between the Department of State and the Public Health Service and, at one time, "an interlocking directorate" existed. Dr. Williams assumed direction of OIHR (Public Health Service) in November 1948, while continuing as Chief of the Health Branch in the Division of International Labor, Social and Health Affairs in the Department of State. Dr. Hyde was Assistant Chief in both the PHS and State offices. In 1949, the PHS Office of International Health Relations was designated the Division of International Health. The Health Liaison Office in State was discontinued.

Thus, within the span of a few short years (1945–48) the Public Health Service and State were establishing international health offices, participating in the development of the World Health Organization, and planning United States participation in this new intergovernmental endeavor established in 1948. The NIH, which attained Bureau status (1943) in the PHS was given authority for an extramural program (1945) and its first international awards were made in 1947–48.

PHS Missions to Other Countries

The Surgeon General, Dr. Leonard Scheele, included in his 1951 Report of the Public Health Service, a section on "Progress in World Health." Dr. Scheele described the role of the PHS:

> The Public Health Service has assumed responsibility for planning, staffing, and supervising bilateral health programs in the Economic Cooperation Administration, and in the Technical Cooperation Administration (TCA) of the Department of State. A Public Health Service officer is in charge of the health program of the Institute of Inter-American Affairs, another agency of the Department of State. In addition, officers of the Service, assigned to certain embassies and consulates of the United States render many services in the international health field . . .
>
> All international activities of the Public Health Service are coordinated and administered by the Division of International Health in the Office of the Surgeon General. During the year, the work of the Division has been greatly expanded primarily because of the increased activities of ECA and TCA. (9)

Committees were established in each country in Southeast Asia to coordinate bilateral and multilateral programs—the bilateral programs of ECA, with the multilateral programs of international agencies such as the World Health Organization (WHO), and the United Nations Children's Fund (UNICEF). These coordinating committees included representatives of ECA and WHO, as well as representatives of the host government. A country's requests for bilateral and multilateral health projects were reviewed by its coordinating committee, a process which Dr. Scheele believed expedited action by the appropriate Agency. He gave an example of a Vietnamese proposal which WHO could not initiate because the Vietnamese Government did not have sufficient local currency to contribute its financial share. The ECA provided United States owned Vietnamese currency (counterpart funds) to the Vietnamese Government, and the project was initiated by the WHO.

A theme of the third national conference of the United States National Commission for the United Nations Educational, Scientific, and Cultural Organization (UNESCO) in 1952 was cooperation (efforts) for peace and security. A symposium was held on "Meeting World Health Problems." Aspects of international health programs explored were inequality of opportunity, and four major needs—sound program planning, personnel, public understanding and support, and fiscal resources. (*10*)

United States programs were both multilateral and bilateral. The United States technical assistance appropriations for FY 1952 were approximately $400 million and 10% were for bilateral technical assistance in health. (*11*) The Public Health Service had personnel in 16 countries; some detailed to the Mutual Security Administration (MSA) in Burma, Formosa, Greece, Indo-China, Indonesia, Philippines, Thailand, and Turkey. Others were assigned to the Technical Cooperation Administration in India, Iran, Iraq, Israel, Jordan, Lebanon, Liberia, and Libya. The Public Health Service provided 120 people. Plans were underway for activities in 14 additional countries. On April 1, 1953, the Division of International Health was officially transferred from the Office of the Surgeon General to the PHS Bureau of State Services (BSS). Because the Director of International Health was responsible for recruiting state and local personnel for domestic and overseas assignments, this organizational rearrangement was intended to establish a closer relationship between domestic and international public health activities.

In testimony on March 30, 1954 before the Subcommittee of the House Committee on Appropriations, Dr. Leonard A. Scheele characterized the three major program areas of the Public Health Service as research, operation of hospital and medical care programs, and provision of financial and technical assistance to the States in public health and in hospital and health center construction. He stated that many Federal Departments and independent agencies required the services of highly qualified personnel to execute health activities in programs designed to accomplish other primary purposes. In 1953, PHS had provided services to many governmental groups including the Departments of State, Treasury, Defense, Interior, Justice, and Commerce, and to the Atomic Energy Commission and the Foreign Operations Administration. A total of 263 PHS personnel were budgeted in FY 1954 for duty with the Foreign Operations Administration outside of the United States. Dr. Scheele believed that assigning Public Health Service officers and providing expert consultation to other parts of the Government prevented an overlap of health functions, assured some professional standards of recruitment, and promoted coordination, planning, and efficiency in Federal health programs. (*12*)

Dr. Jack C. Haldeman, Assistant Chief of the Bureau of State Services described the Division of International Health in his testimony in 1954 before the same Subcommittee:

> The Division of International Health, which is the focal point within the Public Health Service for Service participation in international health programs, has as its principal objectives and responsibilities: (1) The development and presentation of the United States position on international health matters, the coordination of technical work involved in fulfilling United States commitments, and provision of United States representation at international conferences and meetings on health matters; (2) serves as a clearinghouse within the Federal Government for information on health conditions and needs in other countries, and on public health activities planned or conducted under multilateral and bilateral agencies and private foundations; (3) the development, review, and evaluation of bilateral health programs, and provision of personnel and technical guidance for health activities of overseas missions; and (4) the administration of programs for training foreign health personnel in the United States.
>
> The work done by the Division in connection with furnishing personnel for technical direction of the public health divisions of overseas missions and the programing for foreign trainees sponsored by the Foreign Operations Administration, is financed by funds supplied by that agency. The funds requested in this appropriation represent approximately 25 percent of the administrative cost of the Division and are specifically required (1) to finance the direct responsibilities of the Public Health Service in technical liaison and representation with the World Health Organization, the Pan American Sanitary Bureau, and related agencies; (2) to assist the Department of State in the development of United States position on international health matters; (3) to serve as a clearinghouse for information on health condi-

> tions and needs in other countries; and (4) to cooperate with international agencies, foreign governments, nongovernmental bodies, and individuals in the administration of training programs for foreign health personnel not sponsored by Federal agencies. (*13*)

The proposed FY 1955 budget for the Division of International Health was $381,000. Of this, $120,000 or 31% was in direct appropriations and $261,000 or 69% transferred from other Departments and Agencies. Congressman Fred E. Busbey, Chairman of the Subcommittee on Appropriations, queried why the total budget should not come from Foreign Operations Agency (FOA) and the Department of State.

Dr. Haldeman's response was:

> . . . it seems to be a well-established principle that the technical phases of our international activities are a direct responsibility of the appropriate technical agencies subject to coordination in the executive branch by the Department of State.
>
> Now, for the activities which we carry out under the bilateral programs conducted by the Foreign Operations Administration, we do get reimbursed. However, from the standpoint of our multilateral appropriations, like WHO and the Pan American Sanitary Organization, we get a direct appropriation. (*14*)

In 1962 during the appropriation hearings for Fiscal Year 1963, Congressman Fogarty requested a comprehensive statement on the international activities of the Public Health Service. (*15*) The subsequent report described the Bureau of State Services, the National Institutes of Health and the National Library of Medicine including those specialized activities under the Special Foreign Currency Program (Tables 4 & 5). The Special Foreign Currency Program (PL 480) does expend funds, but not United States dollars. The origin of this program was the Agricultural Trade Development and Assistance Act of 1954. Under the aegis of that Act, monies accrue to the credit of the United States Government as a result of the sale of agricultural commodities; but these funds must be expended in the country of origin.

During the period 1967 to date, there have been five major reorganizations of the PHS, the last occurring in 1973, which established the Center for Disease Control (CDC) as a separate administration within the PHS. Thus, many of the earlier international programs of the BSS now are part of the CDC. In addition, the Food and Drug Administration, Health Resources Administration, Health Services Administration, and the Alcohol, Drug Abuse and Mental Health Administration all have international activities.

A Change in Emphasis

The 1960 Report on the PHS Mission and Organization recommended that the Office of International Health (OIH) in the Office of the Surgeon General be responsible for developing service-wide goals, objectives, policies, and procedures for international health. The OIH would also assume those functions executed by the BSS Division of International Health, such as representation at international meetings, preparation of position papers, relationships with the

Table 4.—Public Health Service International Activities (FY 1961)

Organization	Program	Funding (Million $)
Bureau of State Services.	Training services for non-nationals	N.A.
	Collaboration and consultation, Foreign Governments, Intergovernmental and International organizations.	
	Participation in international conferences, congresses and services.	
	Interchange technical information	
	Research or field trials for international agencies or governments.	
National Institutes of Health.	Research grants	8.94
	Research contracts	0.18
	U.S. Fellows and trainees abroad	1.78
	International Research Fellows	0.68
	Visiting Scientists Program	0.87
	Training Grants	0.25
	International Centers for Medical Research and Training.	2.3
National Library of Medicine.	Exchange of publications	N.A.
	International use of services	
	Technical consultation	
	Exchange of persons	
	2nd International Congress on Medical Librarianship.	
	Translation programs	0.41

Based on: U.S., Congress, House, Subcommittee of the Committee on Appropriations, *Departments of Labor and Health, Education, and Welfare Appropriations for 1963*, 87th Cong., 2d sess. (Washington, D.C.: U.S. Government Printing Office, 1962), Part 2, pp. 654–63.

Table 5.—Public Health Service
Special Foreign Currency Program Appropriations (FY 1961–1962)

	Million $
FY 1961:	
National Institutes of Health	[1] 3.7
FY 1962:	
National Institutes of Health	5.1
Bureau of State Services	[2] 3.3
National Library of Medicine	.67

[1] Research in Brazil, Burma, Egypt, India, Indonesia, Israel, Pakistan, Poland, Yugoslavia

[2] Research in community health and environmental health

Based on: U.S., Congress, House, Subcommittee of the Committee on Appropriations, *Departments of Labor and Health, Education, and Welfare Appropriations for 1963*, 87th Cong., 2d sess. (Washington, D.C.: U.S. Government Printing Office, 1962), Part 2, p. 670.

Department of State, information on other countries' activities and recommendations on program proposals for foreign operations. (*16*) When Congress authorized the PHS to use United States-owned foreign currency to support biomedical research, a single appropriation was made to OIH. OIH administered the allocation of funds to the PHS agencies, but had no programmatic responsibilities. As the United States Government and HEW entered into formal bilateral health agreements with other countries, OIH assumed a coordinating role for this activity.

The thirty-year practice of the PHS serving as a technical assistance arm of the Federal Government on a reimbursable basis has continued until today, but it has undergone some changes as have United States technical assistance agencies. In the late 60s and early 70s, three factors changed the nature of the AID/PHS relationship: AID's movement away from supporting PHS teams abroad, PHS difficulty with personnel ceilings, and PHS interest in emphasizing studies, analyses and policy matters. (*17*)

In 1973, of the 57 positions in OIH, 31 were funded by AID. In 1979, approximately $1 million was transferred from AID to OIH which includes funding for 25 positions, about one-half to two-thirds of the total staff. Under this agreement the OIH serves as a resource for AID and provides expert and consultant services in:

1. assistance in health planning and health sector assessment;
2. preparation of briefing documents and other published data on developing countries for AID use;

3. assistance in key problem areas of integrated health delivery systems and environmental health;
4. assistance in collaboration and other international health activities;
5. administrative support.

In August 1978, there was a change in the leadership of OIH from Dr. Paul Ehrlich to Dr. John Bryant. Dr. Bryant was appointed both Director of OIH and given a new administratively established title of Deputy Assistant Secretary for International Health.

In a memorandum of November 7, 1978, Secretary Califano identified Dr. Bryant's responsibilities as:

> Coordinating all international health activities within DHEW.
>
> Planning, recommending policies, and developing mechanisms for program evaluation for international health, in cooperation with concerned agencies and offices.
>
> Establishing mechanisms for identification and analysis of the full range of DHEW international health activities, both foreign and domestically based.
>
> Recommending to the Secretary and the Assistant Secretary for Health the overall budget for international health activities.
>
> Developing international activities in cooperation with appropriate agencies of the Department and facilitating their participation in those activities.
>
> Coordinating the Department's international health activities with those of other Government departments and agencies.
>
> Representing the Department in relation to international health agencies and health agencies of other governments.

Secretary Califano appointed a Deputy Under Secretary, Peter Bell, and the Office of the International Affairs (OIA) was under his jurisdiction until his departure in November, 1979. Within the general leadership and guidance of OIA, the OIH was designated as the "focal point for Departmental policy, planning and coordination of all international health activities."

An International Health Policy Board chaired by the Deputy Assistant Secretary for International Health has been established. Membership includes the PHS Agency heads and heads of appropriate staff offices in the Office of the Assistant Secretary for Health and in the Office of the Secretary. This Board will consider policy issues in international health, and review budget recommendations.

The Office of International Health requested $2.2 million for Fiscal Year 1980 for five program activities:

1. Private sector involvement in international health. ". . . develop and implement mechanisms for coordination for Federal and private sector efforts in international health."
2. Development of multi-donor consortia re Governmental and private extra-budgetary funds to the World Health Organization. OIH plans to mobilize donor support by facilitating ". . . the creation of multi-donor consortia to focus on these WHO important health goals."
3. The United States-Mexico Border Health Initiative. One important facet is the development of a coordinated, mutual epidemiologic surveillance system for communicable and chronic diseases, drug abuse, and family planning.
4. Policy-related studies. United States relationships and involvement in multilateral organizations and bilateral program activities which involve 24 countries including a new program with the People's Republic of China should be studied.
5. Development of an HEW international health information system. The system would contain data on the nature of international resources and funding for purposes of planning, evaluation and coordination within HEW and with other Departments and Agencies. (*18*)

Action taken by Congress on this request for FY 1980 has been to eliminate an increase in the OIH budget.

National Institutes of Health

Programs

Scientific excellence and the relevance to domestic health objectives are the major criteria on which the NIH international involvement has been based; and the purpose has been to generate and apply knowledge through research. Various programs have been developed as different needs have been perceived—but they have all been dependent on the availability of skilled and highly trained manpower. Thus, in general, the programs have involved foreign scientists who may receive support for the conduct of research in their own laboratories, support for postdoctoral research training in United States universities, or support to conduct research at NIH.

Historically, NIH's international relationships have been scientific and at both the individual and institutional level. In 1947, research grants, an international research fellowship program for foreign scientists, and a program for United States fellows and trainees abroad constituted NIH's international programs. Over the years there have been added:

1950: a visiting program which provides awards for postdoctoral research training, and support for scientists and associates to perform research at NIH;

1957: a training program (terminated in 1968);

1960: research contracts;

1961: the Special Foreign Currency Program which used United States-owned local currencies to support research in countries such as Israel, Poland, Yugoslavia and India;

1962: the International Centers for Medical Research and Training (ICMRT) for the establishment of United States university/foreign university relationships which would provide unique opportunities for United States scientists to conduct research abroad. The name was changed to International Centers for Medical Research in 1973;

1963: the International Research Career Development Program (IRCDP) (terminated in 1970);

1967: the Guest Worker Program, in which a scientist sponsored and funded by his institution may come to NIH and use its research facilities;

1976: a Senior International Fellows Program, which enables senior United States biomedical scientists to study or perform research abroad.

Growth

The first international awards in 1947–48 were 13 in number. (*19*) Eleven were research grants totaling $176,569, representing nine countries; five of the grants were in the cancer area. No fiscal data were available for the international research fellowships (Table 6). Among those investigators selected thirty years ago for NIH research grant support were some who have made particularly significant contributions through the years—for example, Sir Alexander Haddow, whose work showed that cyclic hydrocarbons and other compounds that cause cancer also inhibit tumor growth. Dr. Haddow's investigations led to the development of chemothera-

Table 6.—National Institutes of Health Foreign Research Grants (1947–1948)

Country and Investigator	Project	Amount
France: Lacassagne, A.	Chemical constitution and carcinogenic activity.	$13,380
England: Haddow, A.	Factors in carcinogenesis: chemotherapy of cancer.	10,000
Brazil: Chagas, C., Jr.	Chemotherapy of cancer	10,450
Denmark: Fischer, A.	Nutritive requirements of cancer cells	9,000
Denmark: Barfred, A.	Follow-up of patients with alimentary disorders.	5,800
Canada: Selye, H.	General adaptation syndrome in aging	55,080
Guatemala: McAnally, W. J.	Field studies of malaria and antimalarial drugs.	39,376
Norway: Danbolt, N.	Outcome of untreated syphilis	14,800
Australia: Womersley, H.	Trombiculidae of the Asiatic Pacific Region.	8,683
Palestine: Margouliesh, E.	Growth promoting effect of tissue extracts	5,200
Palestine: Margouliesh, E.	Mitosis in normal and malignant cells in vitro.	4,800
	NIH Fellowships	
England: Horstmann, D. M.		
England: Barron, D. H.		

Based on: U.S., Department of Health, Education, and Welfare, National Institutes of Health, Division of Research Grants, Personal Communication.

peutic agents and an increase in knowledge of carcinogenesis and immunology.

Within ten years, NIH's international activities had expanded beyond research and fellowships to include training grants and a visiting program. NIH and its international impact were part of the Federal Government's self-examination in science in the late 1950s. Information presented by the NIH to the Subcommittee on Reorganization and International Organizations chaired by Senator Humphrey described a total of 593 awards with estimated obligations of $3,619,671 for FY 1958 (Table 7). On a geographic basis, NIH reported two hundred twenty-one projects for $2,156,762 dis-

Table 7.—National Institutes of Health International Activities (FY 1958)

	Projects #	Funding ($)
International research activities	98	$1,627,142
Interchange of scientific personnel	225	1,247,620
Interchange of scientific information (preparation of abstracts and translations)	9	209,000
International scientific assemblies	260	235,909
World Health Organization	1	300,000
Total	593	$3,619,671

Based on: U.S., Congress, Senate, Committee on Government Operations, Subcommittee on Reorganization and International Organizations, *International Medical Research—A Compilation of Background Materials*, 85th Cong., 2d sess., 10 November 1958 (Washington, D.C.: U.S. Government Printing Office, 1958), p. 98.

Table 8.—National Institutes of Health International Activities (FY 1959)

	Projects #	Funding ($)		
Research grants	160	$3,000,000		
U.S. fellows abroad	95	581,326		$2,081,369
Foreign fellows in U.S.	48	339,790	$1,500,043	
Foreign workers in U.S.	143	1,160,253		
Translations	N/A	357,000		
Total	446	$5,438,369		

Based on: U.S., Congress, Senate, Hearings before the Subcommittee on Reorganization and International Organizations of the Committee on Government Operations, *The U.S. Government and the Future of International Medical Research*, 86th Cong., 1st sess., July 9 and 16, 1959, Part I (Washington, D.C.: U.S. Government Printing Office, 1960), pp. 105–106.

tributed to 29 countries for research, fellowships, Foreign Fellows in the United States and traineeships. Five countries received 61% of the funds: United Kingdom, 28.2%; Canada, 13.9%; Sweden, 7.8%; The Netherlands, 6.5%; Israel, 4.8%. (*20*)

In hearings on the future of international medical research before the Humphrey Subcommittee, FY 1959, Dr. James Shannon, the Director of NIH, stated that the NIH $5 million funding of international activities was less than 2% of the total NIH appropriations. Table 8 gives the distribution of activities by the number and nature of projects and funding. (*21*) In one year, 1958–59, there was an increase of 84% in funds for research, and an increase of 67% in funding of the interchange of scientific personnel. Of the 286 individuals in the exchange programs, 191 or 67% were foreign fellows or foreign workers coming to the United States.

Dr. Shannon described the FY 1959 expenditures as a tenfold increase over the approximate $500,000 expended during FY 1955. The $5.4 million NIH expenditure was 5% of the $100 million Federal expenditures abroad for health programs, which in turn was about 3% of the total Federal $3 billion funding for health (domestic and foreign). In addition, there were programs of approximately $50 million in United States-owned and/or United States-controlled foreign currencies.

The Senate Report on the 1962 HEW Appropriation Bill (22) stated that the NIH should give particular attention to the continued selection and funding of those foreign research proposals which are clearly relevant to the categorical programs of NIH. The

Table 9.—Comparison of National Institutes of Health International Programs and Funding (FY 1960–1978) in Thousands of Dollars

	1960	1965	1970	1975	1977	1978
Research Grants	$5,249	11,467	2,968	3,917	6,532	7,502
Research Contracts	90	867	1,805	13,790	15,173	15,107
Visiting Program [1]	1,035	1,172	1,628	5,946	8,404	9,469
SFCP [2]	0	3,026	4,503	3,257	4,484	4,199
ICMRT [3]	0	2,491	2,070	2,411	2,400	2,117
Int'l. Research Fellows	501	1,199	1,027	1,370	1,636	2,094
Training	39	487	0	0	0	0
U.S. Fellows Abroad	1,577	2,678	1,101	1,014	823	1,065
IRCDP [4]	0	128	46	0	0	0
U.S. Senior Int'l. Fellows	0	0	0	0	906	1,023
Totals	$8,491	23,515	15,148	31,705	40,358	42,576

[1] Visitors:

FY	#	FY	#	FY	#
1960	138	1970	178	1977	740
1965	156	1975	494	1978	804

[2] Special Foreign Currency Program.

[3] International Center for Medical Research and Training (in 1973 Training was deleted from the name).

[4] International Research Career Development Program.

Data for 1960 based on information from mimeographed report of the National Institutes of Health, Public Health Service, Department of Health, Education, and Welfare.

Data for 1965 through 1978 based on information from U.S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health, *National Institutes of Health Statistical Reference Book of International Activities* [Publications from 1968–1978] (Washington, D.C.: U.S. Government Printing Office).

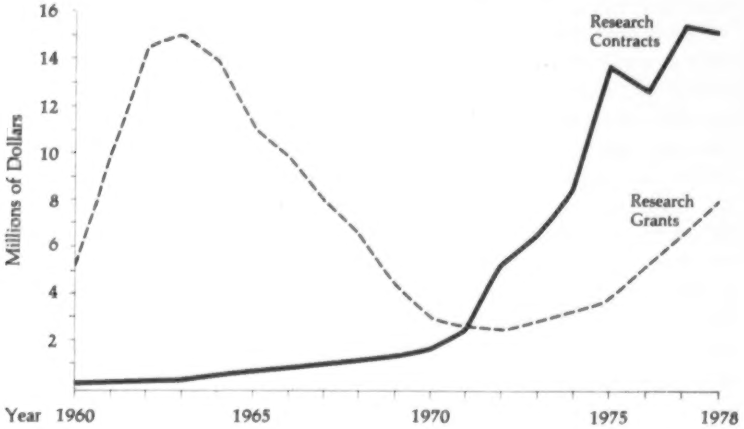
problem which arises from no clear distinction between the support of research as part of NIH's mission and the support of scientific activities overseas for foreign aid or other international purposes was of concern to the Committee. The Committee urged that a distinction be made and maintained. It stated that NIH support of research overseas should not be confused with or utilized for "frankly foreign aid purposes."

The Committee approved those international activities (including the International Centers for Medical Research and Training (ICMRT), overseas research and training) which could be carried out within the context of NIH's regular programs. It did, however, express the desire to explore at the budget hearings the following year "mechanisms used to assure that funds for programs abroad are used effectively and that conflicts between the aims and objectives of the NIH programs and those of the national programs, which are indirectly supplemented by NIH funds are avoided."

Table 9 gives a comparison of NIH international programs by type of activity and funding for the fiscal years 1960, 1965, 1970, 1975, 1977, and 1978. In 1960, 1975, 1977 and in 1978, three programs—research grants, research contracts, and the visiting program—accounted for about 75% of the funding. This, however, has not been constant. Over this seventeen-year period, the level of funding for research grants peaked at $15 million in 1963, dropped to a low of $2.5 million in 1971, and has been slowly increasing so that in 1978 it was $7.5 million, about $2 million higher than the 1960 level. Research contracts increased as research grants decreased, and contracts reached a high of $15.2 million in 1977 (Figure 4).

The nature of the curves in Figure 4 has been determined in part by fiscal and not scientific considerations. On December 9, 1963, the Bureau of the Budget (BOB) issued Circular Number A58 which described the policies and procedures of a system for review and control of Federal Government transactions in order to improve the United States balance of payments. There were guidelines for establishing ceilings on overseas expenditures and for Agency reporting on expenditures by country. These controlled and decreased the NIH expenditures as well as those of other Agencies. A ceiling was established globally and within that a subceiling for Western Europe, Japan, and Canada. The Bureau of the Budget instructed Agencies to terminate, consolidate, or restrict wherever there would be no damage to national interests, even though it may result in additional cost.

Figure 4. NIH international research expenditures (1960–1978).



Data for 1960-1963 based on information from reports of the National Institutes of Health, Public Health Service, Department of Health, Education, and Welfare.

Data for 1965-1978 based on information from: U.S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health, *National Institutes of Health Statistical Reference Book on International Activities* [Publications from 1968-1978] (Washington, D.C.: U.S. Government Printing Office).

The Report of the Senate Committee on the 1965 HEW Appropriation Bill took special note that NIH's overseas research activities would be reduced due to a balance of payment restriction on spending funds in Western Europe, Canada, Australia, and New Zealand. This would affect relationships with the more scientifically advanced nations. The Committee recognized that the financial status of some nations had improved so that they could realistically assume more responsibility for research support. However, the Committee cautioned "against the loss of valuable medical research interchange in an attempt to make a limited contribution to the balance-of-payments problem." (23)

These restrictions were withdrawn in 1973 but not the premise that rigorous criteria must be applied. Thus, in Fiscal Year 1974, each Agency including NIH was asked to assume responsibility for setting its own ceiling with the following criteria: (1) international activities should relate to domestic priorities; (2) international research should either complement domestic research or be superior to that domestically; (3) each responsible office or bureau must prepare a justification for Agency use and review before any decision is made to initiate an international activity; (4) an increase in the previous year's ceiling would be permitted only after careful review of these justifications.

The Senate Committee Report on 1965 Appropriations had also encouraged the development of plans for a new center to be located in Africa comparable to the International Centers for Medical Research and Training (*24*) (Tables 10 and 11). The ICMRTs have been maintained at approximately the same level of funding for the last ten years. The Visiting Program has shown a steady increase in expenditures and the United States Fellows Abroad a steady decrease from 1965–77 but with an increase in 1978. The new program of United States Senior International Fellows has made a promising start, and it may surpass the United States Fellows Programs in number of fellows and expenditures. The Special Foreign Currency Program has fluctuated and has been on the decrease overall since 1970, but 1977 and 1978 show an upswing due primarily to increased activity in Egypt. To these must now be added the formal bilateral agreements which have increased in number from one in 1965 to 18 in 1980 and for which there are no exact data for total costs. These are discussed in Chapter VI, pages 255–97.

The increase in NIH's total international funding including the Special Foreign Currency Program (SFCP) from $8.5 million in 1960 to $42.6 million in 1978 is fivefold (Table 9). NIH FY 1978 international expenditures (excluding the Special Foreign Currency

Table 10.—International Center for Medical Research and Training (ICMRT) Concept (FY 1961)

Arrangement	Overseas Center ⟷ U.S. Medical School.
Purpose	Research resources and field experience for U.S. physicians, scientists, health personnel in foreign setting. Provide training in research to foreign nationals in U.S. or facilities developed within country of origin.
Emphasis	Tropical medicine and infectious diseases, initially.
Budget	$2.5 million.

Based on: Martin M. Cummings, "International Research Programs of the National Institutes of Health," *Journal of Medical Education* 36, no. 12, (December, 1961): p. 1723.

Table 11.—International Centers for Medical Research and Training (ICMRT) Linkages Between U.S. and Foreign Institutions (FY 1961)

U.S.	Foreign
University of California (Hooper Foundation).	Institute for Medical Research, Kuala Lumpur, Malaya.
Tulane University, School of Medicine.	Universidad del Valle in Cali, Colombia.
Johns Hopkins University, School of Medicine, and School of Public Health.	Calcutta School of Tropical Medicine and the All-India Institute of Hygiene in Calcutta, India.
University of Maryland, School of Medicine.	Institute of Hygiene and the Medical Institute College at Lahore, West Pakistan.
Louisiana State University, School of Medicine.	University of Costa Rica School of Medicine in San Jose, Costa Rica.

Based on: Martin M. Cummings, "International Research Programs of the National Institutes of Health," *Journal of Medical Education* 36, no. 12, (December 1961): pp. 1723–24.

Program) of $38.4 million accounted for 1.4% of the overall NIH budget of $2.8 billion.

Table 12 presents each Institute's budget for 1978 as a percentage of the overall NIH budget and the Institute's international funding as a percentage of the total NIH international expenditures. For the last three years, approximately 1.2%–1.4% of the NIH budget has been spent on identifiable international activities, excluding the Special Foreign Currency Program; but not all of these funds are expended abroad.

Geographic Distribution

The geographic distribution of dollar-funded projects for Fiscal Year 1978 is given in Table 13A, and of Special Foreign Currency funded projects in Table 13B. Of a total of 69 countries and five international organizations, eight countries and one international organization account for 66% of the funds and 64% of the projects. Overall, Canada, Israel and the United Kingdom are the three leading recipients of NIH funding and together account for 57% and 51% of NIH's international research grant and research contract funds (Table 14).

The Visiting Program has an interesting pattern. Canada, which ranks first as the recipient of NIH foreign research grant funds, is seventh in the Visiting Program with 30 scientific visitors. India, which is ordinarily not viewed as having a large sophisticated scientific elite, accounted for 100 individuals. Only Japan provided a greater number—171. Third in the scale was the United Kingdom with 80, followed by Israel with 54.

Care is needed when one compares the NIH numerical data and those which are published by the National Science Foundation (NSF) even though the latter are based on an NIH submission. (*25*) There are differences. However, Table 15 suggests a Federal comparison and several significant points. In FY 1978, the United States Government spent $123 million abroad for research and develop-

Table 12.—Comparison of Individual Institute and National Institutes of Health Budgets Domestically and Internationally—Appropriations in Millions of Dollars (FY 1978)
[1.4% NIH budget is Funding for International Activities]

Institute	Budget [1]		International Funding (excluding SFCP) [2]	
	$	% of NIH	$	% of NIH
Cancer	872	30.7	15.2	39.6
Heart	448	15.8	4.0	10.4
Arthritis	260	9.1	3.5	9.1
General	231	8.1	.9	2.3
Neurology	178	6.3	2.4	6.3
Child Health	166	5.8	2.0	5.2
Allergy	162	5.7	3.7	9.6
Research Resources	145	5.1		
Fogarty	8	.3	3.1	8.1
Total	2470	86.9	34.8	90.6
Other	373	13.1	[3] 3.6	9.4
Total NIH	2843		38.4	

[1] Includes supplemental appropriations.*

[2] SFCP—Special Foreign Currency Program.†

[3] Funding includes (Million $) Environmental Health, 1.2; Eye, 0.9; Dental, 0.8; Aging, 0.2; Research Services, 0.3; Clinical Center, 0.02; Computer Research and Technology, 0.03.

Based on:

* U.S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health, *Basic Data Relating to the National Institutes of Health, 1978* (Washington, D.C.: U.S. Government Printing Office, 1979), p. 15.

† U.S. Department of Health, Education, and Welfare, Public Health Service, *National Institutes of Health Statistical Reference Book of International Activities Fiscal Year 1978* (Washington, D.C.: U.S. Government Printing Office, 1979), pp. 6–7.

ment to be conducted by foreign institutions or organizations. Of this, $38.7 million or 31% came from HEW and $28.5 million or 23% from NIH. NIH was responsible for 74% of the total HEW international expenditures.

These data also indicate that 93% of Federal funding in FY 1978 to international organizations for research and development came from HEW and 58% of that was from NIH. There are also some interesting geographical comparisons. Ninety-eight percent of HEW funding and 84% of Federal funding for Israel comes from NIH.

Table 13.—National Institutes of Health International Programs—Geographical Distribution by Numbers of Projects and Funds (FY 1978) in Thousands of Dollars

Country	Projects #	Funding	
		$	%
A. Excluding Special Foreign Currency Program:			
Canada	112	6,407	16.7
Israel	113	4,684	12.2
United Kingdom	184	4,372	11.4
Japan	191	2,819	7.3
Sweden	52	2,029	5.3
Italy	71	1,696	4.4
IARC (Intl. Org.)[1]	6	1,199	3.1
Australia	50	1,187	3.1
India	101	1,082	2.8
Total	880	25,475	66.3
Other	496	12,902	33.6
Total	1,376	38,377	
69 Countries,			
5 International Organizations.			
B. Special Foreign Currency Program:			
Egypt	8	2,935	69.9
India	5	778	18.5
Poland	1	403	9.6
Yugoslavia	2	81	1.9
Pakistan		2	.04
Total	16	4,199	
5 Countries.			

[1] IARC—International Agency for Research on Cancer

Based on: U.S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health, *National Institutes of Health Statistical Reference Book of International Activities, Fiscal Year 1978* (Washington, D.C.: U.S. Government Printing Office, 1979), pp. 8–11.

Table 14.—National Institutes of Health International Programs—Geographical Distribution by Major Programs and Funds (Excluding Special Foreign Currency Program) (FY 1978) in Thousands of Dollars

Overall			Research Grants			Research Contracts			Visiting Program		
	#	$		#	$		#	$		#	$
Canada	112	6,407	Canada	51	2,630	Canada	22	3,292	Japan	171	2,016
Israel	113	4,684	Israel	23	1,081	Israel	22	2,741	India	100	1,060
U.K.	184	4,372	Sweden	12	707	U.K.	21	1,724	U.K.	80	1,052
Japan	191	2,819	U.K.	18	602	IARC[1]	6	1,199	Israel	54	642
Sweden	52	2,029	Australia	13	556	Italy	12	1,010	Italy	48	492
Italy	71	1,696	EORTC[2]	1	298	Sweden	8	824	China(Taiwan)	37	438
IARC[1]	6	1,199	Belgium	5	158	PAHO[3]	3	822	Canada	30	369
Australia	50	1,187	Argentina	4	142	IUAC[4]	2	718	Australia	25	255
Total	779	24,393		127	6,174		96	12,330		545	6,324
Other	597	13,984		35	1,328		43	2,777		259	3,145
Total	1,376	38,377		162	7,502		139	15,107		804	9,469

[1] International Agency for Research on Cancer.

[2] European Organization for Research on Treatment of Cancer.

[3] Pan American Health Organization.

[4] International Union Against Cancer.

Based on: U.S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health, *National Institutes of Health Statistical Reference Book of International Activities Fiscal Year 1978* (Washington, D.C.: U.S. Government Printing Office, 1979), pp. 8–11.

Table 15.—Federal Funds for Research and Development to Foreign Performers Including SFCP[1]—Geographic Distribution (FY 1978) in Thousands of Dollars
[Obligations]

	Federal		HEW		NIH	
	$	%	$	%	$	%
United Arab Republic	26,737	21.7	6,127	15.8	4,682	16.4
Canada	12,946	10.5	6,188	16.0	5,908	20.7
United Kingdom	8,353	6.8	2,173	5.6	1,920	6.7
Int'l. Organizations	7,639	6.2	7,107	18.4	4,137	14.5
Philippines	7,412	6.0	—	—	—	—
India	5,415	4.4	1,642	4.2	777	2.7
West Germany	4,831	3.9	564	1.5	564	2.0
Israel	4,555	3.7	3,917	10.1	3,822	13.5
Total	77,888	63.2	27,718	71.6	21,810	76.5
Other	45,280	36.8	11,006	28.4	6,713	23.5
Total	123,168		38,724		28,523	

[1] Special Foreign Currency Program

Based on: National Science Foundation, *Federal Funds for Research, Development, and Other Scientific Activities, Fiscal Years 1978, 1979 and 1980, vol. XXVIII, Detailed Statistical Tables, Appendixes C and D,* Surveys of Science Resources Series, (Washington, D.C.: U.S. Government Printing Office, in press).

Ninety-five percent of HEW funding and 46% of Federal funding for Canada comes from NIH. However, within the NIH funding of $28.5 million, 21% goes to Canada, 16% to Egypt, 14% to international organizations and 14% to Israel.

Scientific Merit

The nature, mechanism, and level of support for NIH international activities have been affected by the attitudes of Congress and the different administrations. The quality of the programs has been sustained by a peer review process which requires that the foreign scientific investigator and his project be evaluated by specialists in the same manner as are investigators in the United States. This process is intended to ensure that the international research grant is competitive with the domestic research grant. The same peer review and evaluation process are not applied to research contracts.

The NIH programs represent a combination of activities of individual Institutes and the Fogarty International Center (FIC). The

FIC has been primarily concerned with exchange programs, fellowships, conferences, and special studies, i.e., programs which are forms of international communication. Activities of the Institutes represent their scientific interests and strengths and are both time and people dependent. Whether the sum of these reflect an overall NIH policy with specific international objectives is a subject for further study.

Justification for programs and funding for international research or research performed in other countries is required on a continuing basis. There is, of course, an accountability which is essential, but one always seems to be required to address the question—Why is it done abroad? Can it not be done in the United States?

Senator Humphrey's Subcommittee began its hearings in 1959 with a background document to substantiate that general and specialized fields of medical sciences had been enriched and advanced by scientists from many eras and countries. (*26*) The report began with classic contributions from Hippocrates (460–377 B.C.) and his writings on epidemics, fevers, epilepsy, fractures, medical ethics, and Avicenna (980–1037) and his text in medicine. The contributions continued—Vesalius (anatomy), van Leeuwenhoek (single-cell organisms)—and on through the centuries into modern day medical sciences: cardiovascular medicine, microbiology, arthritis and metabolic disease, neurology, mental health and mental illness, dentistry, biologics control and cancer. Coupled with these were advances in communications, and new modalities and mechanisms to disseminate information for its application in research, education, and practice.

Through the years, NIH Institutes have presented their justifications for international activities intertwined with their basic missions just as the Institutes' scientific accomplishments become part of the global record of biomedicine. Common to all of these programs is the theme that intellectual talent does not reside solely in the United States. In many cases the nature of a disease, its occurrence in different geographic settings, and research variations dependent upon the geographic locale, all contribute to special scientific considerations.

FY 1960 House Appropriations Hearings contained some good examples. (*27*) Dr. Pearce Bailey described neurology as a branch of medicine developed in Europe during the nineteenth century. He testified that there was some reason to believe that neurological problems could be solved if one could pool all detailed scientific information, review it carefully and move forward on the basis of this new knowledge. Studies in the geographic and climatic distribution of disease might provide answers to some probing questions. At that time, there appeared to be a number of leads in this field, for example, the larger incidence of multiple sclerosis in cold climates.

Dr. John R. Heller of the Cancer Institute described the Cancer Institute's 26 research grants in 13 countries for a total of $455,000. There were also cooperative efforts with scientists from Iron Curtain countries. Antibiotic compounds for testing were being received from the USSR, Yugoslavia and Poland as well as from Western nations and Japan. (*28*)

As Director of the NIH, Dr. Shannon in these Hearings, stated:

> I think there is much more that can be done in the international field, but I think short of enabling legislation, such as Mr. Hill and Mr. Fogarty presented, and which has been re-presented, we would be quite unwilling to use the mechanisms that legally we may have without much more in the way of a clear directive by the Congress that this is an area they want us to follow. If we get that mandate, our contacts and ability to operate in the international field are so firmly established that we can assure you that this would be a very sound operation. (*29*)

Subsequently, various Institutes justified using appropriated funds for research and training activities abroad by linking them to their individual program plans. For example, the National Institute of Allergy and Infectious Diseases supported key studies relating to viral, bacterial, parasitic, and fungal infections in warm climates.

Strengthening research and research training in nutrition in Central America by collaboration with PAHO was a particular interest of the National Institute of Arthritis and Metabolic Diseases. A fairly large scale nutrition research program was to be carried out through the American University in Beirut, Lebanon. Support was also given to research related to the work of the Interdepartmental Committee on Nutrition for National Defense.

Broad epidemiological studies of chronic disease among specific population groups which would include widely dissimilar genetic, constitutional, and environmental characteristics were proposed by the Division of General Medical Sciences. These also included a series of studies in the field of human genetics and human development at two Japanese universities—Kyushu University in Fukuoka and Tokyo University. Kyushu University would be appropriate for clinical, biomedical, and population genetic studies because of its access to isolated offshore Japanese islands which would be a rare natural laboratory for studying isolated human populations. Tokyo University, by contrast in a heavily populated area, would provide unusual opportunities to study uncommon developmental disorders. Thus, problems of mutual interest or unique epidemiological situations are a basis for cooperative research between institutions in this country and abroad.

Middle America Research Unit (MARU)

The Middle America Research Unit (MARU) was initially established in October 1957 as a field research party under an agreement between the PHS Surgeon General Leroy E. Burney, the Assistant Secretary of the Army and the Governor-President of the Canal Zone Government-Panama Canal Company. On September 2, 1960 the Laboratory was established in the Panama Canal Zone as a permanent field station of the National Institute of Allergy and Infectious Diseases with the approval of the Secretary of HEW. MARU's primary purpose was to gather information about viruses which are transmitted by insects and related creatures in the tropics. These studies, important to residents of the tropics, might also relate to viral diseases in this country. The Middle America Research Unit cooperated with the Gorgas Memorial Laboratory in an investigation of equine encephalitis—a disease transmissible to man.

One of the MARU's outstanding accomplishments was the identification and control of Bolivian hemorrhagic fever. A farmer's death in 1962 in San Joaquin, Bolivia was followed by the death of 100 villagers, and the cause was unknown. Efforts were first made to vaccinate the villagers against smallpox, and then the village was disinfected to prevent typhus. The epidemic continued. MARU epidemiologists provided assistance and a United States Research Task Force was set up in cooperation with the Pan American Health Organization. It was discovered that tissue from a victim of the disease caused the death of inoculated animals. From this a virus was isolated and named Machupo. (*30*) The possibility of person-to-person transmission was raised when an investigator's wife came down with the disease.

Drs. Beye and MacKenzie made clinical and epidemiological investigations collecting serum from patients and arthropods, from rodents and other mammals. This material was returned to MARU and to Dr. Alexis Shelokov at NIH. The Bolivian government instituted a rodent eradication program; and the epidemic waned because the MARU investigators had isolated a virus from a

Top left, **Dr. Kuns receiving animal specimens from two youngsters in San Joaquin, Bolivia;** top right, **Dr. R. MacKenzie tests sera for antibodies to Machupo virus in MARU "hazardous" laboratory;** bottom, **Miss Madeline Ferrari and Miss Navarro interviewing a convalescent hemorrhagic fever patient, San Joaquin, Bolivia. (Courtesy of the National Institutes of Health)**

Calomys Callosus mouse which matched the virus isolated from a fever victim. It was discovered that people were unsuspectingly eating food contaminated by the urine of mice. (*31*) (*32*) The spread and transmission of Bolivian hemorrhagic fever was prevented by identifying the virus and initiating controls through a collaboration involving MARU researchers and the Bolivian government. The Bolivian government awarded the Medal of the Order of the Condor of the Andes to the NIAID/MARU scientists, Drs. Karl M. Johnson, Ronald B. MacKenzie, Merle L. Kuns, and posthumously, Henry K. Beye.

Top, Medal of the Order of the Condor of the Andes, awarded by the Bolivian Government to NIAID scientists for their research on Bolivian hemorrhagic fever (July 25, 1964). Bottom, left to right: **Dr. Karl M. Johnson, Director of MARU; Rear Admiral Ronald Monja Roca, Commander of Bolivia's Fluvial Forces, who was instrumental in obtaining official recognition for the men; Dr. Ronald B. MacKenzie, Dr. Merle L. Kuns. The award was made posthumously to Dr. Henry K. Beye. (Courtesy of the National Institutes of Health)**

The NIH decided to consolidate the activities of MARU with the Gorgas Memorial Laboratory in 1972. The reasons included the complementary nature of some of the scientific work, but the most important was the personnel employment constraints placed on NIH. Accordingly, NIAID concluded that it could not continue with this overseas laboratory activity.

Current Examples

Today, the NIH international research activities reflect the justifications and continue the scientific interests of almost 20 years ago. The 1976 Nobel Prize for Physiology and Medicine was awarded to Dr. D. Carleton Gajdusek of the NIH for his research on Kuru, a neurological disease in New Guinea. Drs. Gajdusek and Zigas described the fatal heredofamilial disease (Kuru) which occurred in epidemic proportions among the aboriginal people of the Eastern Highlands of New Guinea. (*33*) The field studies provided the basis for work by Drs. Gajdusek and Gibbs which demonstrated that this disease is caused by a virus transmissible to apes, old world monkeys, new world monkeys, and mink. (*34*) (*35*) Kuru became the first chronic human disease proved to be a slow virus infection. Drs. Gajdusek and Gibbs initiated studies demonstrating that the Creutzfeldt-Jakob Disease could be transmitted to nonhuman primates and subsequently that both the sporadic and familial forms are transmissible. The transmissibility of familial forms of these diseases is significant to our knowledge of genetic diseases and suggests that other hereditary diseases may be caused by viruses. Drs. Gajdusek and Gibbs have shown that some subacute degenerative diseases of the human central nervous system are infectious in nature. (*36*)

Current emphasis is on worldwide epidemiology of diseases with destructive pathology of the brain of the Creutzfeldt-Jakob disease type. Drs. Gajdusek and Gibbs have produced data that these diseases can be transmitted accidentally from man to man by using contaminated neurosurgical instruments. Recent epidemiological data suggest an incidence of this type of fatal brain disease of about two to three per million population in the six continents under study and a slightly higher incidence in restricted foci in various geographic locations. (*37*)

The international character of this research is also illustrated by the continuing work with Amerindian populations in South America, Melanesian, Micronesian, and Polynesian populations in the South Pacific, the aboriginal population in Australia, and isolated and tribal groups in some developing countries. In addition to these field studies, work is conducted in NIH laboratories by visiting workers from Australia, New Guinea, Micronesia, Indonesia, Singapore, Malaysia, West Germany, France, England, Scotland, Sweden, USSR, Yugoslavia, Czechoslovakia, Kenya, Niger, Nigeria, and Tanzania. Thus, work which began in New Guinea now involves research and investigators in many parts of the world and has had a profound impact on advances in human neurology and in mammalian biology and microbiology.

The National Institute of Neurological and Communicative Disorders and Stroke has been designated one of eight WHO Collaborating Centers in the Neurosciences. The other centers are in Montreal, Strasburg, Marseilles, Geneva, Mexico City, Moscow and Ibadan.

During 1977 the National Institute of Allergy and Infectious Diseases (NIAID) supported 13 individual research grants in eight countries in basic and clinical immunology. The major emphasis was on characterization of the cellular immune response. NIAID has a Histocompatibility Reagent Bank. The Human Tissue Typing Reagents program has become an international resource. Well characterized reference reagents complement NIAID research support in order that organ transplantation may become a feasible clinical practice. NIAID cooperates with approximately 215 non-United States laboratories by supplying Human Leukocyte Antigens (HLA) typing reagents for the study of the major histocompatibility complex in clinically successful solid organ and bone marrow transplants and white blood cell and platelet transfusions. Reagents are also used for human genetic research, including studies of the immune response, and susceptibility or resistance to disease in the investigation of anthropological questions.

Originated in 1962, NIH ICMRs will have completed their present grants in May 1980, and may compete for funds under a new program announced by the National Institute of Allergy and Infectious Diseases. The new program, "International Collaboration in Infectious Diseases," will concentrate on infectious diseases and the immunology of these diseases, instead of the broader research programs of the ICMRs. The tropical diseases to be emphasized will be those of the WHO Program for Research and Training in Tropical Diseases: malaria, schistosomiasis, filariasis, trypanosomiasis, leishmaniasis, and leprosy. Research may involve medicine, protozoology, entomology, helminthology, microbiology, mycology, virology and bacteriology. Epidemiology, etiology, diagnosis, treatment, control, and prevention are important elements of the new program. This endeavor has two major program components. The first is a multi-disciplinary collaborative research program linking a United States institution with a foreign research institution. The major portion of the research must be conducted in the foreign country and be relevant to that country's health problems. The United States sponsor and a representative of the foreign government may develop the agreement directly, or they may use an intermediary organization such as PAHO or the WHO Regional Offices.

The second component is an Exploratory/Development Research Grant to link United States and foreign investigators with common research interests in infectious diseases and immunology. The major portion of the research is to be conducted at an overseas site, and the foreign professional and his staff may spend a short time in the United States investigator's laboratory. To give stability, the awards may be for a period as long as five years.

Expertise applied to different aspects of a problem in several areas of the world is illustrated by the investigations underway on Sudden Infant Death Syndrome (SIDS) in the United States, the United Kingdom, Italy, Australia and Canada, all with research grant or contract support from the National Institute of Child Health and Human Development (NICHD). There is increasing evidence that the Sudden Infant Death Syndrome is not caused by a single active mechanism but may involve developmental, environmental and pathological factors. Investigations are demonstrating that there may be anatomic and physiologic defects of a neurologic, cardiorespiratory and/or metabolic nature. Dr. Paul Johnson of the Nuffield Institute for Medical Research at the University of Oxford is developing an animal model for studies of the Sudden Infant Death Syndrome with particular emphasis on the upper-airway tract. Information has been obtained concerning the activity of the superior laryngeal nerve (SLN) in relation to stimuli, histology of the laryngeal mucosa in lambs and sheep, breathing and effective swallowing in relationship to various stimuli, brainstem lesions, cardiovascular, metabolic, and endocrine changes. These pathophysiologic studies can provide a scientific basis for clarifying questions such as how swallowing and the sleep-state cycle relate to the Sudden Death Syndrome in infants. (*38*)

Dr. Schwartz of the University of Milan and Dr. Stewart Wolf of the University of Texas Medical Branch have concluded that in patients with myocardial infarction, QT interval prolongation may be a predictor of sudden death. (*39*) Dr. Schwartz is investigating whether one can reproduce in animals the characteristics of the prolonged QT interval syndrome which is clinically associated with ECG abnormalities, syncopal attacks and the Sudden Infant Death Syndrome. The syndrome is identified by an abnormal lengthening of the electric signal between the Q and T waves recorded on an electrocardiogram. The long QT syndrome can be successfully reproduced in the adult cat. It may serve as an experimental model for studying specific imbalance in sympathetic innervation of the heart in relation to the pathogenesis of SIDS.

At the Baker Medical Research Institute in Australia, Dr. John E. Maloney is investigating the chemical and neural control of the respiratory system of fetal lambs in utero, during birth, and in the immediate postnatal period. Data are being collected on the neuromuscular control of vital heart and lung functions in the fetal period which relate to the understandings of the SIDS. (*40*) Scientists at the University of Toronto, Canada are investigating the neural mechanism in the functions of the upper respiratory tract in kittens. Studies are in progress on laryngeal motoneurons in older cats to determine whether the sensitivity of respiratory cells to stimuli decreases with age.

Malnutrition and mental development, the inborn errors of metabolism, malnutrition and infection and immunity are all subjects which are under investigation which involve both developed and developing countries and several Institutes at NIH. The NICHD supports a longitudinal study of the malnourished population in Nairobi, Kenya. One of the objectives is to study incidence, causes and consequences of measles vaccine failures, as well as immediate postnatal and long-term immunologic defects associated with varying degrees of intrauterine malnutrition. NICHD also supports a long-term investigation carried out by the Institute of Nutrition of Central America and Panama, on the ecology of infection, malnutrition and growth of children in a Guatemalan Indian village. (*41*) (*42*) (*43*) Two concurrent studies are underway, one concerned with the antibacterial defenses of the newborn and the other study with the ability of malnourished children to have an appropriate antibody response to measles vaccine and natural measles infections.

NICHD is supporting a study in cooperation with the Institute for Nutritional Investigation, Lima, Peru, designed to determine whether locally available food such as potatoes or wheat may meet the protein needs of infants who are either healthy, convalescing from malnutrition, recovering from diarrhea, or severely malnourished. Another study of low-income pregnant women and their offspring in Bogota, Colombia will examine the effects of malnutrition in late pregnancy and during the first three years of life on physical development.

The National Institute of Arthritis, Metabolism, and Digestive Diseases (NIAMDD) has a number of nutrition research studies through its Malnutrition Panel of the United States-Japan Cooperative Medical Science Program. The three priority areas are: the effects of malnutrition on mental development, learning behavior, physical capability and performance; the influence on health of environmental and host factors (with emphasis on nutrition) in Asian countries; and the effects of malnutrition on infection and immunity. The health consequences of changing patterns of nutrition and food consumption will be pertinent not only to the populations of Southeast Asia, but also for the United States. Nutrition research on a large population group with specific nutritional deficiencies can assist a country in resolving nutritional health problems and also contribute to a knowledge of nutritional requirements and the consequences of malnutrition.

These examples illustrate the geographic impacts of NIH and of biomedical research. The accomplishments resulting from NIH support of foreign research become part of the world's scientific literature and are not narrowly viewed as for example French, American, or Swedish accomplishments. This scientific collaboration with an investigator located in almost any part of the world is in contrast to the scientist/scientist relationship established within a specific geographic context, such as in the NIAMDD activities under the United States-Japan Program. These bilateral agreements are discussed in Chapter VI.

Cooperation with Scientifically Sophisticated Countries

Because there is an ease in communication and a natural relationship among scientists no matter where they are located, it is easy to assume that no particular effort is needed to improve scientific collaboration among developed countries. The Director of NIH is an invited observer to meetings of the European Medical Research Councils where discussions of mutual interest occur. However, there has been a definite shift in formal United States scientific relationships away from Western Europe and our allies, first to the Soviet bloc countries, and now to the developing world.

In recent years the NIH has not engaged in policy studies which are directed toward an increasing awareness and understanding of other countries' biomedical research priorities, budgets, allocation of resources, and activities with societal implications. Such studies could form the basis of determining whether, in fact, the United States and another country could reinforce each other in their support and conduct of biomedical science. In 1961, the Chief of the NIH Office of International Research predicted that, "The role and scope of NIH international activities will probably be influenced more by 'outside' forces such as the rate of development of foreign science than by changes in existing policy . . . ." and that "planning must take into account the influence which our programs may have on the ecology of science in the countries involved." (44) This was evident in the early 1960s. In several instances, Medical Research Councils were just being established, and NIH support

Table 16.—National Institutes of Health Expenditures in Sweden in Thousands of Dollars

Year	Research Grants	Research Contracts	Total
1961	$1,011		$1,011
1962	1,337		1,337
1963	1,499		1,499
1964	1,251		1,251
1965	901		901
1966	883	$4	887
1967	928		928
1968	680		680
1969	603	57	660
1970	464	67	531
1971	382	82	464
1972	204	357	561
1973	354	359	713
1974	372	661	1,033
1975	449	851	1,300
1976	567	842	1,409
1977	629	902	1,531
1978	707	824	1,531
Total	$13,221	$5,006	$18,227

Data for 1964 through 1978 based on: U.S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health, *National Institutes of Health Statistical Reference Book of International Activities* (Washington, D.C.: U.S. Government Printing Office) [Publications from 1968–1978].

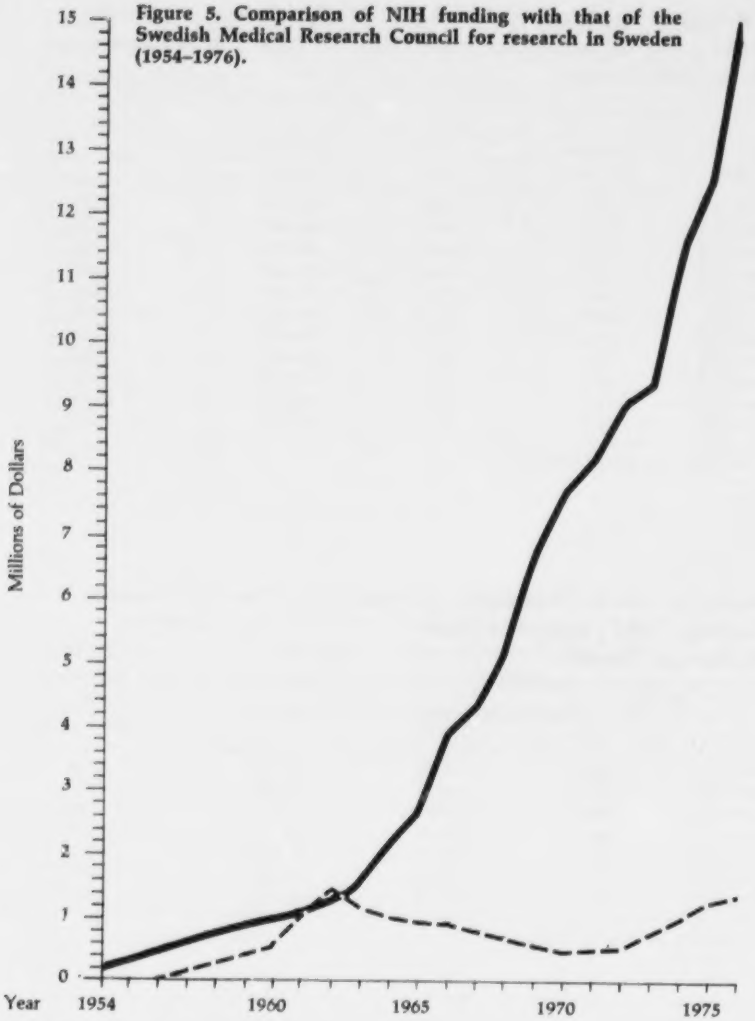
Data for 1961–1963 from reports of the National Institutes of Health, Public Health Service, Department of Health, Education, and Welfare, *Research Projects Grants Awarded to Foreign Institutions and International Organizations.*

of a country's research was greater than that of the host country. Table 16 provides information on United States funding for Swedish activities and Figure 5 compares NIH grants and contracts to Sweden with Swedish funding of biomedical research. In 1962–63, United States research funds for Sweden were greater than Swedish support. For a period, in its effort to establish a balance and not dominate science in foreign countries with United States dollar support, NIH became sensitive to this issue and kept abreast of research budgeting and biomedical resources in other countries. This process was aided by the assignment of NIH representatives to United States Embassies in London, Paris, Tokyo, and Rio de Janeiro.

Being knowledgeable of another country's profile in biomedical research is as important today as it was 15 years ago, but for a different reason. Biomedical research budgets are increasing at a slower rate or have leveled off in terms of percentage of Gross National Product (GNP). Tables 17–20 present the budgets of the Medical Research Councils of Sweden, United Kingdom, Canada, and the Institut National de la Santé et de la Recherche Médicale of France as a percentage of the GNP; they are currently about 0.02%, 0.05%, 0.03% and 0.02% respectively, compared to 0.1% for the United States NIH budget as a percentage of GNP. These data do not represent the totality of biomedical research support in these countries but they are illustrative. Thus, it is no longer a matter of NIH curtailing support in other countries but rather whether the close rapport developed over the years in biomedical science may now lead to some reinforcement at the policy level and subsequently at the program and research level. Certainly, the United States should explore developing an appropriate mechanism at the NIH level with comparable institutions in countries such as the United Kingdom, Canada, France, Germany, Sweden, and Japan. Areas of common concern can range from specific research endeavors and disease areas to socially and ethically significant issues, such as recombinant DNA and human experimentation.

These arrangements, stimulated by scientific concern, could be changed in emphasis, and even terminated if the scientific need did not continue to exist. It is the kind of bilateral arrangement which NLM has found to be effective and productive (pages 76–82). Such arrangements are different from the bilateral agreements described in Chapter VI, which are politically motivated and initiated.

Figure 5. Comparison of NIH funding with that of the Swedish Medical Research Council for research in Sweden (1954–1976).



▬ Swedish Medical Research Council:
Data 1966–1976 from Swedish Medical Research Council.
Data 1954–1966 from Bergstrom, Sune, M.D., "American Support of International Biomedical Research Programs: A Swedish Viewpoint" in *Advances in Medicine: Essays at the Bicentennial*, Ed. John Z. Bowers and Elizabeth F. Purcell, Vol. 2, Josiah Macy, Jr. Foundation, 1976, p. 796.

– – NIH Grants and Contracts:
NIH Statistical Reference Book of International Activities, 1968–76.
NIH Research Project Grant Awarded to Foreign Institutions and International Organizations, Fiscal Year 1964: Funds for 1954–64.

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Table 17.—Sweden—Relationship of Medical Research Council (MRC), Budget to Gross National Product (GNP) in Millions of Swedish Crowns

MRC		GNP		%
Year	Swedish Crowns	Year	Swedish Crowns	MRC/GNP
1966/67	20.3	1966	117,749	.0172
1967/68	22.7	1967	126,957	.0178
1968/69	27.1	1968	135,779	.0199
1969/70	35.3	1969	153,418	.0230
1970/71	40.1	1970	170,807	.0234
1971/72	43.0	1971	183,647	.0234
1972/73	47.0	1972	199,508	.0235
1973/74	51.5	1973	220,415	.0233
1974/75	58.0	1974	249,345	.0232
1975/76	64.4	1975	286,944	.0224
1976/77	71.7	1976	323,353	.0221

Source: Swedish Embassy

Table 18.—United Kingdom—Relationship of Medical Research Council (MRC) Budget to Gross National Product (GNP) in Millions of Pounds

MRC		GNP		%
Year	£	Year	£	MRC/GNP
1970/71	22.9	1970	44,045	.0519
1971/72	25.3	1971	49,674	.0509
1972/73	28.8	1972	55,565	.0518
1973/74	30.6	1973	64,782	.0472
1974/75	36.6	1974	74,854	.0488
1975/76	47.4	1975	94,040	.0504
1976/77	52.	1976	108,853	.0477

Source: British Embassy

Cooperation with Developing Countries

Has the modest NIH involvement in research with developing countries been due to lack of decisions, ideas, funds or legislation? International research and health initiatives enthusiastically endorsed today as innovative have been presented before, including

Table 19.—Canada—Relationship of Medical Research Council (MRC) Budget to Gross National Product (GNP) in Millions of Canadian Dollars

MRC		GNP		
Year	Canadian Dollars	Year	Canadian Dollars	% MRC/GNP
1966/67	15.5	1966	61,828	.0251
1967/68	20.7	1967	66,409	.0312
1968/69	27.2	1968	72,586	.0375
1969/70	31.2	1969	79,815	.0391
1970/71	34.4	1970	85,685	.0401
1971/72	36.1	1971	94,450	.0382
1972/73	38.1	1972	105,234	.0362
1973/74	41.1	1973	123,560	.0333
1974/75	43.7	1974	147,528	.0296
1975/76	48.4	1975	165,343	.0293
1976/77	51.9	1976	191,166	.0271
1977/78	57.8	1977	209,379	.0276
1978/79	64.1	1978	230,407	.0278

Source: Medical Research Council, Canada

Table 20.—France: Relationship of the Institut National de la Santé et de la Recherche Médicale (INSERM) Budget to Gross National Product (GNP) in Billions of Francs

	INSERM	GNP	%
Year	Francs	Francs	INSERM/GNP
1964	.054	449	.0120
1965	.063	483	.0130
1966	.075	523	.0143
1967	.105	565	.0186
1968	.121	614	.0197
1969	.109	700	.0156
1970	.136	782	.0174
1971	.156	872	.0179
1972	.180	981	.0183
1973	.218	1114	.0196
1974	.246	1278	.0192
1975	.284	1450	.0196
1976	.332	1669	.0199
1977	.409	1875	.0218
1978	.466	2128	.0219
1979	.550	2408 *	.0228

* Provisional

Source: INSERM

the concept of relating research to health and to broader social and economic issues. This is not to say that they should not be presented again but perhaps it is worthwhile to see why it is necessary to repeat the process.

History of an International Proposal (1962)

In 1961, the Inter-American Economic and Social Conference signed the Charter of the Alliance for Progress which was summarized in the Declaration of Punta del Este. In 1962, NIH submitted at Congressman Fogarty's request during the HEW Appropriations Hearings an outline of a "Program for Medical and Health Research and Training in Latin America." (*45*) NIH's proposed programs were presented within the broader concept of United States-Latin American endeavors related to long-term economic, social and cultural development. Collaborative and cooperative mechanisms were recommended requiring approval by the people, institutions, and the countries concerned. The state of development in a Latin country would be the determinant on whether the first step should be the application of existing knowledge coupled with programs to provide increased capabilities. In other instances, the generation of new knowledge would be essential in areas such as:

1. infectious diseases and curtailing transmissible disease;
2. development of an adequately nutritious food supply with emphasis on protein availability and essential accessory food factors;
3. epidemiology of diseases with unusual geographic distribution or high prevalence;
4. adequate environmental sanitation: the first step would be adequate potable water supply and sanitary waste disposal.

NIH would be involved directly in the first three items. However, progress in all four areas would require adequate primary and secondary education, agricultural reform, and systematic and sustained application of basic health measures. Along with the fundamental programs in medical research and training, there would have to be direct collaborative assistance dedicated to disease control, public health assistance and demonstration programs. Appropriate technology would be applied in this process of reinforcing research public health methods.

The NIH plan had four components: planning; strengthening teaching and research institutions; extension of training opportunities; and support of research.

Planning.—Joint United States and Latin planning would determine policies, content, and priorities. Financing would require dollars and United States-owned local currencies.

Strengthening Teaching and Research Institutions.—It was proposed that four to six institutions of higher learning be selected for further development as centers of excellence for research and training. This would be part of the broader concept of strengthening science generally in Latin America. A "critical mass" of competence, facilities, and money for medical and related basic sciences would be necessary. Existing institutions such as the University of Mendoza in Argentina, the National University of Brazil in Rio de Janeiro, and the Universidad del Valle in Cali, Colombia, were considered promising locations. Relationships with United States universities could be university or departmental to encourage full-time teaching and research. Commitments would not exceed five years and a matching plan formula for assumption of responsibility by the Latin American schools was part of the program. The estimated initial annual cost for institutional support was $1 million ($900,000 from PL 480 funds, $100,000 in United States dollars).

Extension of Training Opportunities.—There should be an increase to about 100 annually of the number of Latin and United States individuals at various professional levels who would improve their knowledge and competence, both in a United States and a Latin setting. The number of fellowships available to Latin American scholars and investigators would be increased to 50 and the program broadened to cover all disciplines relating to health and medical and related basic sciences. The estimated annual cost was $500,000. Comparable fellowships available for United States nationals to study, do research, or teach in Latin America would be increased to a total of 30 at an estimated annual cost of $180,000. Such a fellowship program could be extended by a visiting professorship program, the initial cost of which would be in the order of $200,000.

A new program to provide fellowship or other training support at both the pre- and post-doctoral level would be initiated for promising young Latin Americans to study, do research or teach in Latin American universities and research institutions. Selection would be through national organizations and support for up to three years would be provided. The proposed number was 100, and the estimated annual cost $300,000.

Support of Research.—A greater effort would be made to identify and support good research opportunities. NIH had made a research planning grant to PAHO which would assist in this endeavor. NIH research grant support in Latin America in 1962, totaled approximately $900,000. A fourfold increase to $3,500,000 over the next three years was proposed.

Special efforts would be made to develop research programs collaboratively, and a significant role was ascribed to national scientific organizations for guidance and in selecting projects and distributing support. The overall estimated cost for this new Latin program was $2.8 million ($1 million for research and $1.8 million for research training). Of the total, $900,000 could be local currencies in Brazil, Chile, Colombia, and Peru.

This "Program for Medical and Health Research and Training in Latin America" was never executed, although it had many of the good features of the collaborative research plans with the developing countries which are being presented today. The difficulties were primarily due to the withdrawal of many of these countries from the excess currency list, no dollar appropriations, and restrictions on dollar expenditures abroad. Thus, fiscal resources have been and can be a principal determinant and a lack of them is an effective deterrent.

National Library of Medicine

Internationally, NLM's programs are based not on an expenditure of United States dollars abroad but on a cooperative sharing of services, talent, and resources. For this reason, current surveys on international health which have concentrated on dollar expenditure as an indicator of international programs, have not captured the work of the National Library of Medicine.

NLM's international activities can be characterized in six general categories: literature exchange, library services, Special Foreign Currency Program (PL 480), MEDLARS cooperation, technical consultation, and participation in international organizations. Thus, they are a blend of activities with a variety of mechanisms for execution, but all have the common objective of direct benefit to the United States health and medical effort.

Exchange Programs

Historically the concept of a strong library exchange program was encouraged when Surgeon General Barnes commissioned Dr. John Shaw Billings in 1881 to visit a number of libraries on the

European continent. Currently the Library has 400 exchange partners in 72 countries throughout the world from whom considerable material is acquired which otherwise would be difficult to obtain. These exchange partners now include the USSR, Cuba, and the People's Republic of China.

Services

Traditionally, the Library has responded to international requests for service and information. However, NLM was forced to curtail these services in 1969 because of very severe budget and personnel limitations. Two of these services were restored in 1971—interlibrary loans and audiovisual loans—but for a service fee.

From 1966 through 1978, NLM had a special arrangement with the United States Agency for International Development (AID) to provide annually approximately 30,000 services to 48 developing countries throughout the world. These included interlibrary loans, reference services, MEDLINE searches, and subscriptions to *Index Medicus, Abridged Index Medicus* and the *NLM Current Catalog*. These services met a demonstrated need in those countries where modern medical information is unavailable because of inadequate facilities, collections, and staff.

The subject matter extended through all elements of health—research, education, and delivery of health care—and covered broad topics such as nutrition, environment, and communicable diseases as well as specialty areas. The 1978 broad geographic distribution of these NLM/AID services was approximately 33% to Latin America for technical support of the Pan American Health Organization's Regional Library of Medicine; 64% to Asia; and 3% to Africa. These data do not reflect total or absolute needs; in fact, the modest AID/NLM program could not respond totally to existing inadequacies.

Special Foreign Currency Program (PL 480)

NLM's Special Foreign Currency Program is authorized by PL 83–480 whereby funds accrued to the United States by the sale of surplus agricultural commodities are spent in the country of origin on projects mutually beneficial to both countries. NLM initiated programs in Poland, Yugoslavia, Israel, India, Pakistan, Egypt, and Tunisia. Historically, these programs produced translations of specialized biomedical literature from Russian, Polish, and

Serbo-Croatian languages into English so that the information therein would be available to United States scientists.

NLM began, however, in 1964 to change the character and emphasis of this program from a translation activity to the development of bibliographic tools useful for physicians in research, education, or practice. A critical review program was initiated in 1966. The NLM concept of a critical review is a publication written by an outstanding scientist who analyzes his field in terms of its past, present, and future. This kind of review can be as important for a rapidly expanding research field as for one which is lagging. In the former, the analysis and synthesis may bring coherence; in the latter, the critical review may provide a stimulus for new directions of research.

Many health-related directories, handbooks, monographs, histories of medicine, and critical reviews have resulted from the Special Foreign Currency Program and Table 21 illustrates the FY 1978 distribution of projects by type and funding.

Table 21.—National Library of Medicine Special Foreign Currency Program, PL 480, Active Projects, 1978

	Projects		Funds	
Type	#	%	000 $ Equiv.	%
Critical Reviews/Monographs	52	61	1,220	67
Histories of Medicine	14	16	245	14
Secondary Tools	1	1	28	1
Foreign Translations	15	18	232	13
Conference Proceedings	3	4	85	5
	85		$1,810	

MEDLARS Agreements

The MEDLARS data base and *Index Medicus* are international in character. The 2,598 serials in *Index Medicus* represent 30 languages and 73 countries. Of these serials, 59% are in English only and are produced in 49 countries. English is also the primary language in 63% of the 365 multilingual journals. This emphasis on English language publications is not a result of an increase in the number of United States journals. Forty-eight countries in addition to the United States publish medical literature primarily in English.

Thus, there has been a shift toward English as the language of biomedical publications.

Because of the nature of the data base, many countries were interested in obtaining MEDLARS computer tapes as soon as the system became operational in 1964. (*46*) The NLM began international cooperation with the United Kingdom and Sweden for their experimental testing of NLM's new computerized system. As the United Kingdom and Sweden moved closer to operational status and the provision of services, it became clear to NLM and was agreeable to the other countries, that definitive bilateral arrangements would be desirable. These were based on a *quid-pro-quo* concept which has continued in the bilateral agreements which NLM has with ten cooperating countries and the Pan American Health Organization.

There is no transfer of monies between the participating country and NLM. NLM makes available the MEDLARS system, either through tapes or online access to the NLM computer, technical documentation, and training. The participating country must meet technical criteria involving personnel, equipment, and fiscal resources and have a user community large enough to justify an extensive computerized service activity. The participating country then provides and/or funds the indexing of journal articles for input to the MEDLARS data base in return for access to the system.

During 1966, the Committee on Scientific and Technical Information (COSATI) of the Office of Science and Technology in the Executive Office of the President had a Panel on International Scientific Information. The Panel was preparing a policy for Federal agencies on international cooperation involving magnetic tapes and data bases. The principal tenet of the policy, subsequently adopted, was a *quid-pro-quo* relationship under which information systems would be made available in return for some form of contribution.

The technology gap between the United States and Western Europe was a recurring theme at that time. The Office of Science and Technology in the Executive Office of the President and the Department of State were interested in encouraging United States action to bridge the technology gap in the information field. A determination was reached to provide the Organization for Economic Cooperation and Development (OECD) with a leadership role in this area. The Office of Science and Technology and the Department of State proposed to NLM in December 1966 that MEDLARS be offered to OECD as a United States operational information system for introduction to the European countries. This offer was made first to the OECD Scientific Information Advisory Group in December 1966 by William Knox, Office of Science and Technology, and was accepted by the Group.

The origin and character of OECD are pertinent to what follows. OECD stems from Marshall Plan aid to Europe and the successive organizations, the European Productivity Agency and the Organization for European Economic Cooperation (1948). In 1961 the Organization for Economic Cooperation and Development was formally established. Membership of OECD was principally European, but also included Canada and Japan.

OECD is concerned with economic growth, employment, development, and world trade. Activities within the OECD framework relate to financial markets; problems of monetary cooperation; coordination of aid to developing countries (Development Assistance Committee); peaceful uses of nuclear energy; science and technology; education; environment; industrial, agricultural and energy problems; manpower; and social affairs.

Although an organization whose principal preoccupation is other than scientific, OECD members have discussed over the years science-related programs and established an OECD Science Directorate. Within the last fifteen years, the Directorate has considered major issues in scientific manpower, research, the organization of research, national science policy and, more recently, information and computer technology. Included in the latter was the computerized biomedical information activity of the National Library of Medicine. OECD explored whether it could stimulate and develop a consortium for further MEDLARS information services within Europe. The alternatives were to select either the United Kingdom or Sweden to serve a European consortium or to develop a new MEDLARS center within Europe for this function. Thus, during 1967–69, discussion of international cooperation for MEDLARS moved from the bilateral to the multilateral setting of OECD. Two years were occupied with numerous OECD meetings and discussions which resulted in no decision on a consortium but renewed determination on the part of individual countries to have bilateral arrangements with NLM.

These OECD discussions did bring to the attention of governments the activities underway in other countries at a national level. However, OECD initiatives remained at the discussion stage and never progressed to regional, functional, or operational activities. These results could and should have been anticipated in view of the fact that OECD's past accomplishments in science and technology had been an exchange of views and the preparation of studies, and not as a decision maker, operator, or manager of a regional activity.

It is interesting to examine the administrative settings for the current MEDLARS centers in other countries (Table 22). NLM often receives simultaneous requests from many institutions in the same country, each vying to become a MEDLARS center; but NLM does not select the non-United States institutions which will serve

Table 22.—National Library of Medicine Non-US MEDLARS Centers (1979)

Country	Operating Organization	Parent Funding Organization
Australia	The National Library of Australia (NLA).	
Canada	Canada Institute for Scientific and Technical Information.	National Research Council of Canada.
France	Institut National de la Santé et de la Recherche Médicale (INSERM).	Ministère de la Santé Publique et de la Securité Sociale.
Iran [1]	Pahlavi Library of Medicine	Imperial Medical Center of Iran.
Italy	Istituto Superiore di Sanità	Ministero della Sanità.
Japan	Japan Information Center of Science and Technology (JICST).	Science and Technology Agency.
Mexico	Centro Nacional de Información y Documentación en Salud.	Ministry of Health and Welfare.
South Africa	Institute for Medical Literature.	South African Medical Research Council.
Sweden	Karolinska Institutet	The Swedish Medical Research Council.
United Kingdom	The British Library	
West Germany	Deutsches Institut für medizinische Dokumentation und Information (DIMDI).	Der Bundeminister fur Jugend, Familie und Gesundheit.
Intergovernmental Health Organization.	Biblioteca Regional de Medicina (BIREME).	Pan American Health Organization (PAHO).

[1] Inactive as of January 1979.

as MEDLARS centers. The choice has to be made by the country itself after certain technical criteria established by NLM have been met. The MEDLARS center may be in an organization which is primarily concerned with medicine or health, within a library setting, or within an organization which is concerned broadly with science and technology. In all cases, each foreign MEDLARS center functions as a national biomedical information resource.

A country has a choice of alternative MEDLARS arrangements. It may operate the system on its own computer using the NLM tapes with or without the NLM software; or it may access NLM's computer in Bethesda. With advances in telecommunications and the establishment of nodes in other countries, the United States national biomedical communications network has been extended internationally so that direct online access to the NLM computer is possible via this linkage. Table 23 describes the selections which have been made by the cooperating partners.

Dr. Dostatni, Search Analyst, INSERM, France, accessing the National Library of Medicine computer system via intercontinental telecommunications linkages. (Courtesy of the National Library of Medicine)

Table 23.—International Access to MEDLARS

Tapes	Tapes/Software	Online NLM
Germany [1]	Sweden [1]	France.
Japan	United Kingdom [1]	Canada.
	Australia [1]	Iran.[2]
	PAHO	Italy.
		Mexico.
		South Africa.

[1] Supplemental Online Access.
[2] Inactive as of January 1979.

Some centers have decentralized computer and document delivery functions. There is no one organization existing within these other countries which can perform all of the MEDLARS functions as they are done in this country by the NLM. The two functions maintained by all centers have been searching and training. Sweden and the United Kingdom have been especially active in training programs—not only for their staffs but for the user community. The centers have developed a number of activities—selective dissemination of information (SDI); vocabulary development; translations of the NLM's indexing vocabulary, Medical Subject Headings (MeSH) into German, French, Japanese, and Portuguese; online systems applications; and the usage of other data bases.

The pattern of regional coverage by the foreign centers is a very important and delicate policy matter. It is the policy of NLM not to make the determination for other countries on how and to what extent their MEDLARS centers extend services beyond their national boundaries. Such decisions should be taken jointly by the other countries, but with the knowledge and consent of NLM. The extension of MEDLARS information services will depend on a country's relationship with its neighbors, its pricing policy for MEDLARS services, and a determination of whether the relationship is restricted to service or involves a broader area of technical assistance. The development of EURONET (the European On-Line Information Network) by the Commission of the European Communities and CEC philosophy of information and computer networking will have an impact on the existing European pattern of providing information services.

Issues such as these are discussed in an International MEDLARS Policy Advisory Group (IMPAG) consisting of policy representatives from NLM and the countries with a MEDLARS Center. The IMPAG evaluates these international agreements periodically to ensure continuing technical and professional benefit. NLM has called five IMPAG meetings since 1972. Topics examined include the nature of cooperation, operational experience, new data bases, regional coverage, networking, and future cooperation. There has been consistent reaffirmation that the participating countries wish to continue their bilateral collaboration with the Library.

Technical Consultation

The Library is often called upon for technical consultation, either by organizations concerned with developing a regional approach to solving information problems, or by countries in their development of a national biomedical information center. The NLM role in developing the PAHO Regional Library of Medicine is described in Chapter VII, pages 336–37.

Nations are becoming increasingly aware of the value of scientific and technical information. NLM is often asked to assist in the design of national biomedical information centers or to receive individuals for extensive specialized training and work experience. These efforts have not always resulted in the actual establishment of such national centers. The reason may be the country's lack of a firm policy decision and commitment to the project, or the lack of resources for implementation.

Many countries are often faced with such crucial decisions for immediate, urgent health care that it is very difficult to allocate resources for an activity which would appear to be more long-range. Problems which require action and resolution may relate primarily to the medical setting, such as the strengthening of basic collections of libraries, the training of library staff, and the relationship between the medical librarian and the physician to increase the awareness on the part of the medical community of the value of a modern medical library. There are other problems outside the sphere of medicine and health, such as the mechanism for the transfer of information, whether it be the postal service, transportation, or telecommunications.

Thus, the increased interest and efforts to improve biomedical communications are encouraging, but, in reality, it is not an easy task, especially for the developing countries.

International Organizations

NLM has varying degrees of involvement with a number of international organizations, both governmental and nongovernmental, scientific and nonscientific. These include the United Nations; the UN's specialized agencies which have a health or scientific orientation such as the World Health Organization (WHO) and the Pan American Health Organization (PAHO) and the United Nations Educational, Scientific, and Cultural Organization (UNESCO); economic organizations such as the Organization for Economic Cooperation and Development (OECD); and scientific agencies such as the International Council of Scientific Unions Abstracting Board (ICSU AB).

NLM's involvement is often derived from its experience in biomedical communications and the international organization's efforts to relate this experience to larger questions of social significance.

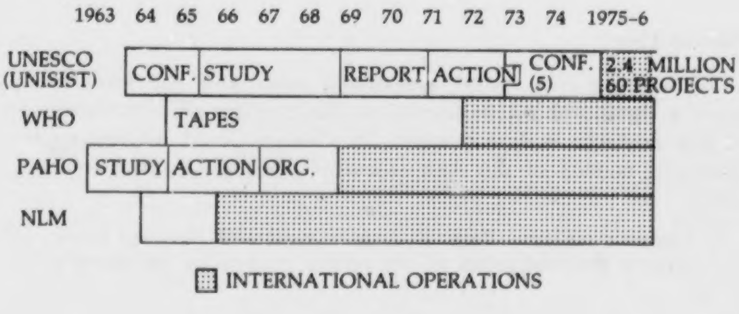
Mechanisms for International Cooperation

In developing international cooperation, it is essential to select a mechanism which is responsive to immediate needs and will form a basis for continued growth.

The dilemma of "internationalism" through large intergovernmental organizations can be examined in some specific case histories: UNESCO and its special project, UNISIST; the World Health Organization; the Pan American Health Organization; and our own NLM efforts.

Figure 6 illustrates the lag between the concept of international cooperation and actual operations. It is clear that an international intergovernmental organization can move from concept to operation, but it is very time consuming. For example, the 1964 Pugwash Conference, a meeting ground for United States and USSR

Figure 6. Comparison of international cooperation mechanisms.



scientists, decided that "a unified system of information storage and retrieval" was needed globally. In 1965 UNESCO, representing governments, and the International Council of Scientific Unions, representing nongovernmental scientific unions, independently began to examine this problem. In 1966 they decided to sponsor a joint study. Four years later, in 1970, the study was issued and the "unified system" became a "flexible network of voluntary cooperation of existing and future services."

A 1971 UNESCO intergovernmental meeting of 85 countries and 39 organizations accepted the recommendations of the study. Action was initiated, and in the next two years there were five more conferences to determine UNISIST implementation. In the 1975–76 biennium of UNESCO activity, $2.4 million was allocated for 60 projects throughout the world.

The second example is the World Health Organization. The Surgeon General of the Public Health Service offered MEDLARS tapes to WHO in 1965. In 1972, WHO began providing MEDLARS services primarily for the WHO staff and its technical commissions. A concerted effort was made by WHO in 1975 to provide computerized information services to developing countries. This was terminated in December, 1977 and a new experimental one-year arrangement was initiated in October, 1979 (pages 336–37).

It is clear from these experiences that NLM has been able to move quickly with its foreign partners into operational activities because the Library maintained discussions at the scientific and technical level with counterpart institutions. These illustrations of international organizations and cooperation reveal that an international organization has other considerations—governmental, political, economic, and social—which bear on any deliberations of scientific cooperation. The final decision thus rests on a number of elements and not solely on scientific and technical factors. This has a direct impact on the ease and speed of decision-making.

Networking

Networking is a recent operational mode and will most likely have a significant future impact on the transfer of information. It is not, however, a new concept. Dr. George Gould, addressing the founding session of the Association of Medical Libraries in 1898, said:

> Scientific medicine depends upon a rigid and thorough-going literary systematization of the results reached by the world's

> million workers. Every place of human activity has recognized that the sine qua non of progress is organization and intercommunication.

We have moved from Dr. Gould's "rigid" concept to a flexible one; but a network still requires informed decision-makers, a user community, a commitment of fiscal and personnel resources, the astute use of technology, and cooperation. Within the setting of a network, each participant must give up some autonomy.

Networking will assume even greater significance in future international cooperation as technological advances continue to increase intellectual but not physical proximity. The fundamental issue will still remain, however, the selection and quality of information for enhanced medical research, education, and medical care.

Chapter III

SCIENCE: TOOL OR INSTRUMENT OF FOREIGN POLICY?

> *Science and politics were by 1950 no longer to be regarded as two totally unrelated activities . . . The type of society in which each could go his own way with only a polite bow to the other had disappeared as irrevocably as the American buffalo from the plains.*
>
> JAMES B. CONANT (*1*)

IN TRYING TO IDENTIFY and trace the decisions and actions which have stimulated and shaped the international United States health involvements of today, I found a maze—independent courses of action, some intermingling of science and foreign policy, organizational considerations, jurisdictional conflicts, political decisions—interspersed with innumerable studies. There is not always an identifiable and distinct cause and effect. An historical perspective provides a sense of both *deja vu* and an eagerness to see whether one can avoid repeating some of the past by laying the basis for future decision-making and reasonable growth and development.

Biomedical research and communications cannot be viewed *in vacuo.* First, they are related in substance to biomedical science and public health, domestically and internationally. Second, they are affected by administrative, organizational, and foreign policy considerations, i.e., the role of the Federal Government. These interactions will be described qualitatively, and where possible, quantitatively.

What has occurred during the last thirty years is reflected in (1) studies, (2) Presidential statements, and (3) Congressional initiatives. I have chosen to present illustrative examples in each of these three groupings with considerable documentation, and one can perhaps determine whether progress has been made in rhetoric, concepts and/or decisions. The interplay between international health programs and foreign policy considerations will be explored in Chapter IV.

Studies

Three studies are particularly noteworthy:

1. *Science: The Endless Frontier* which proposed a relationship between science and Government for a national science effort (1945);
2. Hoover Commission: *Organization of the Executive Branch of the Government* (1947–49) which criticized the organization of the Federal Government as tending to separate domestic and foreign problems when both should be aspects of a national policy;
3. *Science and Foreign Relations* which recommended a role for science in foreign policy. (1950)

Science: The Endless Frontier

As the United States emerged from World War II, scientific research and development had achieved significance and prestige not matched in earlier years. Under the Office of Scientific Research and Development (OSRD), a new and effective collaboration had been established between the Federal Government and the academic world.

On November 17, 1944 President Franklin D. Roosevelt asked Dr. Vannevar Bush, Director of OSRD, how the OSRD experience in wartime could be applied in peace. This idea originated with Oscar Cox, General Counsel of the Foreign Economic Administration, and not the scientific community. (2) The resulting report to the President, *Science: The Endless Frontier*, was primarily concerned with national issues and included reports of four committees—Medicine; Science and the Public Welfare; Discovery and Development of Scientific Talent; and Publication of Scientific Information. (*3*)

The Medical Advisory Committee emphasized the value of biomedical research and declared that it was the research from earlier years followed by development work which led to penicillin, the insecticide DDT (dichloro-diphenyl-trichloro-ethane), serum albumin as a blood substitute, immune globulin, and malaria treatment. In recognition of the continuing need to generate new knowledge, the Committee recommended Federal support for basic medical research in medical schools and universities by grants and fellowships. These proposed functions were subsequently incorporated into the National Institute of Health (NIH) in 1946 as OSRD projects were transferred to NIH for administration.

Included in the reports of the four committees were international considerations: liaison with foreign agencies, international exchange of scientific information, support of international cooperative scientific enterprises, international fellowships, and United States scientific attachés in embassies abroad. These reflected some of the principal desires of the scientific community to restore international communications which had been lessened and in some cases completely interrupted during the war years.

Basic to the final study report was the recommendation that there be a national science effort. After five years of deliberation and debate, the National Science Foundation (NSF) was established in 1950.

Hoover Commission: Organization of the Executive Branch of the Government (1947-1949)

> The traditional line of demarcation between domestic and foreign problems has completely disappeared, and the governmental organization must be shaped to formulate and execute national policies which have both domestic and foreign aspects. (4)

A general blurring of activities and responsibilities among Departments and Agencies was noted during the course of the Hoover Commission studies. The first Hoover Commission, the Commission on Organization of the Executive Branch of the Government, was established in 1947 (61 Stat. 246).

Its report to Congress in 1949 stated "the United States is paying heavily for lack of order, a lack of clear lines of authority and responsibility, a lack of effective organization in the Executive Branch . . . great improvements can be made in the effectiveness with which the government can serve the people if its organization and administration is overhauled." There were 19 separate reports, supported by 78 task force studies, which contained 381 specific recommendations for improvement in organization, management, and operation of the Executive Branch. (5)

The Commission's Task Force on the Conduct of Foreign Affairs considered policies as the mechanisms for achieving objectives. The Task Force reached a conclusion often presented *de novo* today: domestic and foreign problems are not sharply delineated; and government organization should be such that national policies in their formulation and execution take into account domestic and foreign aspects. This conclusion was based on studies of the interdepartmental approach to foreign affairs and the foreign affairs aspects of Agencies' activities. (*6*)

The Task Force listed 15 functions which the Public Health Service, then located in the Federal Security Agency (FSA), had authority to perform. (7) The following are especially pertinent today:

1. Employ aliens as consultants and appoint aliens to fellowships.
6. With the Administration's approval, make and enforce regulations to prevent the introduction of communicable diseases from foreign countries.
12. Participate in the international educational exchange under PL 402 (80th Congress).
15. Make health studies and provide grants-in-aid for research projects.

The remaining eleven functions related to biologics, narcotics, alien physical and mental examinations, marine and air service, health and sanitation functions, participation in a Philippine program; and provision of a health mission to Liberia.

Agencies submitted their own recommendations to the Hoover Commission. The Federal Security Agency, the predecessor of the Department of Health, Education, and Welfare, made recommendations which have a familiar ring: FSA should be considered the "technical agency in the areas of international social policy represented by its professional staffs (e.g., health, education, social insurance)," and that FSA "be provided with funds and staff needed to enable it to participate effectively in the formulation of international social policies and to implement international social policies in such matters as are directly assigned to it."

Thirty years ago, the Hoover Commission's Foreign Affairs Task Force identified some causes of dilemmas which are often evident today: independent actions on the part of both the Department of State (State) and other Departments and Agencies; duplication by State of organizational units and activities in other Departments and Agencies; and the ineffectiveness of large unwieldly interdepartmental committees. According to the Task Force, Congress never prescribed the statutory authority of the State Department; the organic statute of 1789 fixed the role of the Secretary of State as an arm of the President for the conduct of foreign affairs. Individual Department and Agency participation in the conduct of foreign affairs, i.e., substantive powers, come from authority or appropriation granted by Congress.

Thus, the Task Force allocated the role of supervision and coordination to the Office of the President and the conduct of foreign affairs to the Secretary of State as the arm of the President. A distinction was made between the means and the substance of foreign affairs—the former rested with State and the latter with other Departments and Agencies.

The Task Force suggested that State's role be to:

1. Define proposed objectives.
2. Formulate proposed policies to achieve United States objectives in conjunction with other departments and agencies where they have interest or experience.
3. Recommend the choice and timing of means and instruments of carrying out United States foreign policies.
4. Execute traditional responsibilities of representation, information, and negotiation. (*8*)

This definition precluded State from operational responsibility and gave to other Departments and Agencies the role of administering (under the observation and with the advice of State) programs consistent with United States foreign policies and objectives. This reserved to State a broader function: the "integrated use" of these foreign policy instruments. The Task Force considered an instrument of foreign policy as a vehicle to *achieve* the objectives and not to *determine* foreign policy.

The Task Force did not limit itself to recommendations for State but addressed other Federal Departments and Agencies. It placed responsibility (Recommendation 210) on them to consider the possible foreign impact of all proposed major policies and programs, and to consult with State accordingly.

The principle (*9*) was that the Department or Agency

> . . . with the power to exercise an instrument of foreign policy should be looked to and relied upon by the State Department to gather the necessary facts within the special competence of

> the other department or agency on a world-wide basis, to evaluate these facts, to propose policies or programs within its power to execute and to execute the programs agreed upon in accordance with established policy.

The Task Force concluded that Departments and Agencies were not effectively organized consistent with increased responsibilities in foreign affairs and recommended that each Department and Agency establish an officer or office "directly responsible to the Department or Agency head for coordinating its foreign affairs activities." (*10*) The prescribed tasks for this office were representational, development of an overall agency viewpoint, liaison, and coordination. No line authority was suggested; the functions were of a staff nature.

According to the Task Force, the conduct of foreign affairs within the Executive Branch required action, supervision and coordination from the Office of the President and could not be the exclusive province of the Department of State. Existing specialized interdepartmental bodies at the Cabinet level to advise the President on foreign affairs in national security and international finance were considered valuable, but this mechanism was lacking in other areas. Such Cabinet level interdepartmental bodies were not to be established specifically by statute, but on a regular or *ad hoc* basis within general enabling legislation; this procedure was to ensure flexibility.

The Berkner Report: Science and Foreign Relations

An effort to describe an appropriate relationship between science and foreign relations was an outgrowth both of the Hoover Commission and the postwar setting. Humanitarian, economic and security concerns of the United States were expressed by emergency aid to Greece and Turkey (1947), Marshall Plan aid to Europe (1948), and the formation of a military alliance, NATO (1949). Scientific research was beginning to be viewed not only as a national resource but as an "effective instrument of peace"; objectives in this postwar period were couched in terms of security and welfare. The National Science Foundation Act of 1949, proposed by the Bush Report, was pending.

In May 1949, the Department of State's Reorganization Task Force No. 2, cognizant of Hoover Commission recommendations, reported:

> The Department is dealing on the one hand with foreign policy matters which have a great effect upon United States scientific policy and on the other hand with international scientific activities which have an impact on foreign policy. These matters are being handled at various points without adequate scientific evaluation . . . We believe that the extent of the Department's responsibility for international scientific matters requires top policy consideration and the aid of professional scientific judgment, and cannot properly be determined in the course of a necessarily hurried review of the Department's organizations. (*11*)

The State Department appointed Lloyd V. Berkner as a consultant to examine science and foreign relations and to recommend a role and functions for the Department. His report, *Science and Foreign Relations* (1950) addressed both policy and operational issues and posed two basic questions:

> *First,* how can the potentialities of scientific progress be integrated into the formulation of foreign policy . . . so that the maximum advantage of scientific progress and development can be acquired by all peoples?
>
> *Second,* how can foreign relations be conducted in such a manner as to create the atmosphere that is essential to effective progress of science and technology? (*12*)

The Study's recommendations included a Science Office in the Department and Science Attachés in selected United States embassies abroad; support of international scientific organizations and conferences; increased scientific information and educational exchange programs; technical assistance; elimination of unnecessary controls over the international flow of scientific information and persons; a more important role for science in the formulation of foreign policy; and a reexamination of interagency relationships.

The early 1950s showed beginning efforts to organize science within the Department of State, but the undertakings had no great stability. Sputnik, in 1957, gave impetus to further studies within the Executive and Legislative branches of Government to determine the status and health of United States scientific endeavors within the context of global affairs. Thus, political and security matters created positive attitudes toward science and its funding, leading to a Presidential Science Advisor, an Office of Science in the State Department, the appointment of Science Attachés in some of our embassies abroad, increased funding for science, and a beginning recognition that science (biomedical or health) is apolitical. But the problem continued: what does one do with apolitical science in a political setting?

Presidential Statements

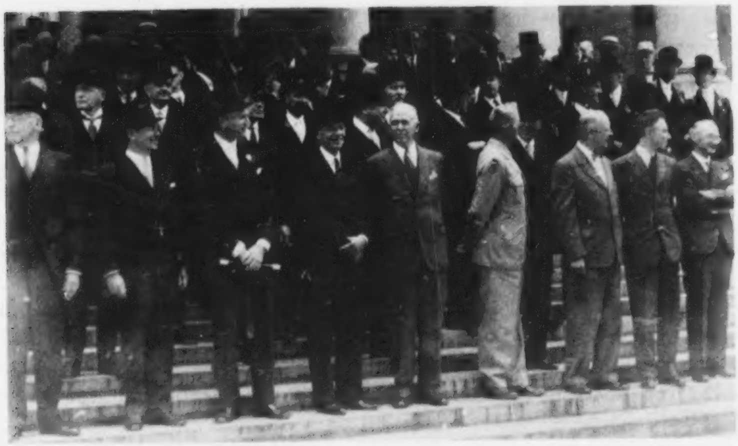
Sensitivity to both the humanitarian and political value of international science, medicine, or health, has been reflected in a number of Presidential messages through the years. They were not usually accompanied by a realistic assessment of what could be accomplished within a time frame nor by the provision of resources for implementation.

President Harry S. Truman

> I believe that it must be the policy of the United States to support free peoples who are resisting attempted subjugation by armed minorities or by outside pressures.
>
> I believe that we must assist free peoples to work out their own destinies in their own way.
>
> I believe that our help should be primarily through economic and financial aid which is essential to economic stability and orderly political processes. (March 12, 1947) (*13*)
>
> Fourth, we must embark on a bold new program for making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas. (January 20, 1949) (*14*)

On March 12, 1947 before a Joint Session of Congress, President Truman introduced two concepts into United States foreign policy: (1) wherever aggression, direct or indirect, threatened peace, the security of the United States was involved and (2) the United States would provide economic and financial aid.

He described the plight of Greece and Turkey "both threatened by Soviet power." The British Government had notified our Department of State in mid-February 1947 that it would have to withdraw all troops and end all military and economic aid to Greece and economic assistance to Turkey by March 31, 1947. President Truman asked Congress to approve $300 million for Greece and $100 million for Turkey. He also requested authorization for the detail of American civilian and military personnel to assist in reconstruction and the supervision of the use of materials provided. The amount requested was estimated to be about one-tenth of one



Secretary of State George C. Marshall (center) with James Conant, President of Harvard University on his right and General Omar Bradley on his left on the steps of the Widener Library, Harvard University. In a commencement address, June 5, 1947, Secretary Marshall proposed a plan for the recovery of Europe which subsequently became known as the Marshall Plan. (Courtesy of the Harvard University Archives)

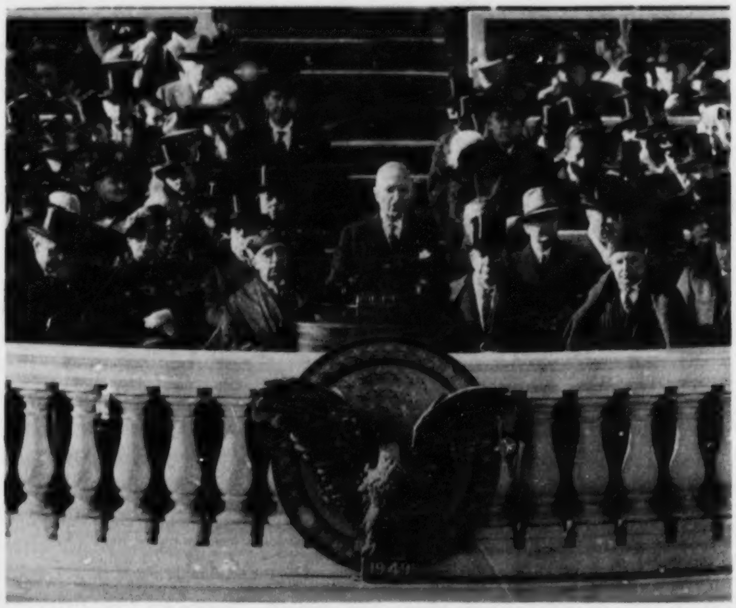
percent of the $341 billion spent by the United States in World War II. Congress passed the Greek-Turkish Aid Bill which was signed by President Truman on May 22, 1947.

The American Mission for Aid to Greece in 1947 included a Public Health Division which became the Public Health Advisory Group on July 1, 1952 until terminated on June 30, 1953. Of the personnel in this division, 15 were United States Public Health Service Commissioned Officers. Approximately $22 million was spent on technical assistance and health during the six-year period (1947–53) including consultation, training, fellowships, construction supplies and equipment. This assistance represented 2.5% of the total nonmilitary aid which the United States provided to Greece as of June 30, 1953. (*15*)

From a May 8, 1947 speech in Cleveland, Mississippi by Under Secretary of State Dean Acheson, and a June 5, 1947 proposal in a commencement address at Harvard University by Secretary of State Marshall, evolved a plan subsequently known as the Marshall Plan for the recovery of Europe. Within one year President Truman had signed the European Recovery Act and an Economic Cooperation Administrator was appointed. This economic rehabilitation of Europe from 1948–1952 was funded with $13.3 billion from the United States.

In his 1949 Inaugural Address, President Truman proposed four courses of action for United States foreign policy: (1) continued support for the United Nations and its related agencies (2) continuation of a program for world economic recovery (3) strengthening the freedom-loving nations against the dangers of aggression and (4) making the benefits of United States science and industrial progress available for the developing countries. (*16*) The last proposal became known as the "Point Four Program."

President Truman indicated in his *Memoirs* that the Point Four Program originated at about the same time as the Marshall Plan concept, but that they were entirely different. The Marshall Plan was for postwar rehabilitation in Western Europe and for those



President Harry S. Truman delivering his Inaugural Address January 20, 1949. He declared as United States policy opposition to human aggression, hunger, misery, and despair. He identified as a fourth course of action ". . . making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas." This proposal subsequently became known as the Point Four Program. (United Press International Photograph)

countries whose production and economy had been ruined by World War II. The Point Four Program "was conceived as a world-wide continuing program of helping underdeveloped nations to help themselves through the sharing of technical information already tested and proved in the United States." (*17*)

In response to a press conference query six days after his Inaugural Address, President Truman said:

> The origin of Point Four has been in my mind and in the minds of the government, for the past two or three years, ever since the Marshall Plan was inaugurated. It originated with the Greece and Turkey proposition. Been studying it ever since. I spend most of my time going over to that globe back there, trying to figure out ways to make peace in the world. (*18*)

Thus, what was subsequently described as the Truman doctrine became a United States policy to oppose Soviet expansionism.

President Dwight D. Eisenhower

> Scientific Coöperation with Our Allies . . . It is wasteful in the extreme for friendly allies to consume talent and money in solving problems that their friends have already solved—all because of artificial barriers to sharing. We cannot afford to cut ourselves off from the brilliant talents and minds of scientists in friendly countries. The task ahead will be hard enough without handcuffs of our own making . . .
>
> A program of Science for Peace might provide a means of funneling into one place the results of research from scientists everywhere and from there making it available to all parts of the world. (*19*)

On January 9, 1958, in his State of the Union Address before Congress, President Eisenhower identified eight items requiring action which would "focus our resources upon the two tasks of security and peace." Included in this listing of defense reorganizations, accelerated defense effort, mutual aid, mutual trade, education and research, spending and saving, and works of peace was an item, "Scientific Cooperation with our Allies." The President called for legislation which would "enable us to exchange appropriate scientific and technical information with friendly countries as part of our effort to achieve effective scientific cooperation." He indicated that the "ground work" for this kind of cooperation had already been laid in discussions among NATO countries.

President Dwight D. Eisenhower delivering his State of the Union Address before Congress on January 9, 1958 from his annotated text. He emphasized works of peace including scientific cooperation with our allies and increased communication with all nations. He invited the USSR to join with the United States in a campaign against diseases as part of a cooperative program of "Science for Peace." (Courtesy of the Dwight D. Eisenhower Library)

In a further enumeration of "Works of Peace," the President's eighth point addressed the peoples of the world, especially those in the Soviet Union. He called for increased communication, exchange of people, and cooperation on projects of human welfare. He stated that the United States was embarking with other nations in an all out five-year campaign against malaria "to blot out this curse forever." He invited the Soviets to join this effort and for the two countries to campaign against other diseases—such as cancer and heart disease. Such cooperation was viewed by President Eisenhower as a start of a full-scale cooperative program—"Science for Peace." An example is the Atoms-for-Peace proposal which later became, under the United Nations, the International Atomic Energy Agency. His selection of communication as a program of Science for Peace suggested the value of research results to all throughout the world.

Following the President's address there was an exchange of letters between the United States and the USSR. On January 27, 1958, the US–USSR Agreement on Exchanges in the Cultural, Technical and Educational Fields was signed by United States Ambassador S. B. Lacy and USSR Ambassador G. N. Zaroubin. During 1958–59, medical delegations were exchanged; there were reciprocal visits of medical specialists, and exchanges of medical films and journals. This was the precursor to the formal United States–USSR Agreement on Cooperation in the Field of Medical Science and Public Health of 1972 described in Chapter VI, pages 275–85.

President John F. Kennedy

> Finally, this Administration intends to explore promptly all possible areas of cooperation with the Soviet Union and other nations "to invoke the wonders of science instead of its terrors" . . . Where nature makes natural allies of us all, we can demonstrate that beneficial relations are possible even with those with whom we most deeply disagree—and this must some day be the basis of world peace and world law. (*20*)

President Kennedy used his State of the Union message to the Congress on January 30, 1961 to include the merits of science, with particular reference to the USSR:

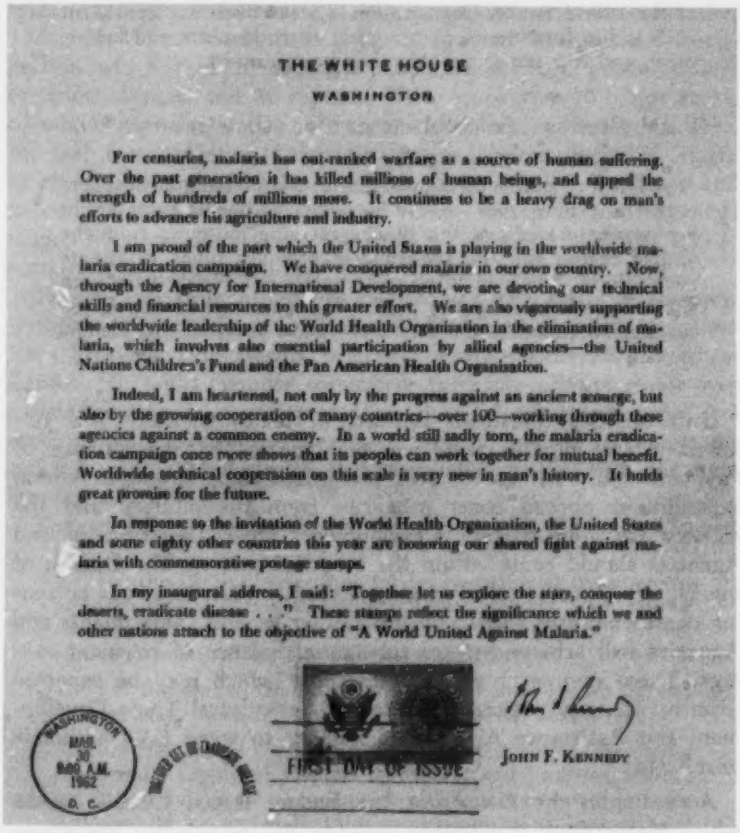
> . . . we must sharpen our political and diplomatic tools—the means of cooperation and agreement on which an enforceable world order must ultimately rest . . . The United States would be willing to join with the Soviet Union and the scientists of all nations in a greater effort to make the fruits of this new knowledge available to all—and . . . to extend farm technology to hungry nations—to wipe out disease—to increase the exchanges of scientists and their knowledge—and to make our own laboratories available to technicians of other lands who lack the facilities to pursue their own work. (*21*)

Science was used to initiate cooperation as the United States attempted to establish mutual security relationships with Japan. Early in 1961 President Kennedy and Prime Minister Ikeda in a joint statement announced agreement to establish a Joint United States–Japan Committee on Trade and Economic Affairs at the Cabinet level. The two Heads of State also agreed to form two United States–Japan Committees—one to study expanded cultural and educational cooperation between the two countries, and the other "to seek ways to strengthen scientific cooperation." This was the beginning of formal United States–Japanese governmental cooperation in science, which had expanded by 1978 to nine individual bilateral agreements and numerous memoranda of understanding in various areas of science and technology (See Chapter VI, pages 264, 270–75).

Within two years, however, after President Kennedy's initial pronouncement concerning international science, expenditures on international health programs were caught up in broader fiscal constraints. President Kennedy's Annual Budget Message to Congress for Fiscal Year 1964 sent on January 17, 1963 discussed Federal expenditures abroad. His Administration's program to reduce the deficit included instituting a system of continuing review

President John F. Kennedy with Prime Minister Ikeda after agreeing to establish a Joint United States-Japan Committee on Trade and Economic Affairs at the Cabinet level and two US-Japan Committees, one on cultural and educational cooperation and the other on scientific cooperation (1961). Behind President Kennedy and Prime Minister Ikeda are left to right: Koichiro Asakai, Ambassador to the United States; Dean Rusk, Secretary of State; Zentaro Kosaka, Japanese Foreign Minister; Edwin O. Reischauer, Ambassador to Japan; and James Wickle, interpreter. (Courtesy of the John F. Kennedy Library)

of all Federal activities affecting the balance of payments. ". . . all proposed expenditures which affect the balance of payments have received particular attention and review" in the preparation of the 1964 budget. Other nations, particularly European countries and Japan, were encouraged ". . . to accept a greater share of the costs of economic aid to developing countries and to increase support for military defenses within their own borders." (22)



THE WHITE HOUSE
WASHINGTON

For centuries, malaria has out-ranked warfare as a source of human suffering. Over the past generation it has killed millions of human beings, and sapped the strength of hundreds of millions more. It continues to be a heavy drag on man's efforts to advance his agriculture and industry.

I am proud of the part which the United States is playing in the worldwide malaria eradication campaign. We have conquered malaria in our own country. Now, through the Agency for International Development, we are devoting our technical skills and financial resources to this greater effort. We are also vigorously supporting the worldwide leadership of the World Health Organization in the elimination of malaria, which involves also essential participation by allied agencies—the United Nations Children's Fund and the Pan American Health Organization.

Indeed, I am heartened, not only by the progress against an ancient scourge, but also by the growing cooperation of many countries—over 100—working through these agencies against a common enemy. In a world still sadly torn, the malaria eradication campaign once more shows that its peoples can work together for mutual benefit. Worldwide technical cooperation on this scale is very new in man's history. It holds great promise for the future.

In response to the invitation of the World Health Organization, the United States and some eighty other countries this year are honoring our shared fight against malaria with commemorative postage stamps.

In my inaugural address, I said: "Together let us explore the stars, conquer the deserts, eradicate disease . . ." These stamps reflect the significance which we and other nations attach to the objective of "A World United Against Malaria."

WASHINGTON
MAR.
30
9:00 A.M.
1962
D. C.

FIRST DAY OF ISSUE

JOHN F. KENNEDY

President Kennedy's letter issuing a postage stamp to commemorate the worldwide malaria eradication campaign (March 30, 1962). The World Health Organization, the Pan American Health Organization, the United Nations Children's Fund, and over 100 countries joined in this endeavor. (Courtesy of Dr. Henry van Zile Hyde)

Simultaneously with the application of these fiscal constraints, President Kennedy referred in his "Special Message to the Congress on Improving the Nation's Health," (February 7, 1963) to the importance of international medical research and the need to continue and expand collaboration with other countries in a global struggle against disease:

> Over the past few years the United States has rapidly expanded its international medical research activities and support. We have also been instrumental in encouraging research under the aegis of the World Health Organization. These efforts are consistent with and in furtherance of our goals of world peace and betterment, and it is important that they be continued.

He addressed specific problems such as yellow fever.

> A problem of particular significance in the Western Hemisphere is that of yellow fever . . . We have pledged our participation in a program to eradicate this disease-carrying mosquito from the United States, and the 1964 budget provides funds to initiate such efforts. This will bring this country into conformity with the long-established policy of the Pan American Health Organization to eliminate the threat of yellow fever in this Hemisphere. (*23*)

Unfortunately, President Kennedy's Health Message was followed in five months with one to Congress on the Balance of Payments (July 18, 1963). This recognized that, although Federal expenditures abroad come primarily from the military and the Agency for International Development, other Departments and Agencies should come within the scope of review. The Bureau of the Budget Director told President Kennedy that "vigorous screening of expenditures abroad by these other Federal Departments and Agencies will achieve further substantial balance of payment savings. These savings, together with those which may be expected from revisions of programs under the Agricultural Trade Development and Assistance Act, should amount to some $100 million a year." (*24*)

Accordingly, the Bureau of the Budget issued Circular A–58 which placed fiscal constraints, ceilings and geographic limitations on overseas spending. These actions not only lessened, but in some cases terminated international biomedical and health activities. These restrictions were lifted in 1973.

President Lyndon B. Johnson

> . . . enduring strand of policy has been to help improve the life of man . . . [which, beginning with the Marshall Plan has] rested on the claims of compassion, and the certain knowledge that only a people advancing in expectation will build secure and peaceful lands. (*25*)

The year 1965 was designated International Cooperation Year (ICY) by the United Nations General Assembly and UN members were urged to commemorate it in appropriate ways. In November 1965, the White House held a Conference on International Cooperation which brought together 5,000 leaders and produced 400 recommendations and 30 reports. There were over 30 major areas, of which health was one. Of the 16 chapters in the *Proceedings*, the last was "Meeting Other Challenges," which included health as one of 13 topics: agriculture and food; aviation; business and industry; communication; disaster relief; education and training; labor; research on the development of international institutions; social welfare; transportation; women; and youth activities. (*26*)

The Health Committee was chaired by Dr. Leroy E. Burney, formerly Surgeon General of the Public Health Service, and then Vice President for Health Sciences, Temple University Medical Center. His eight-member committee from the private sector was assisted by seven consultants from the Federal government. According to the committee there were two motivating forces for increased international health activities: self interest for our own security and ethics.

The specific recommendations of the Health Committee were:

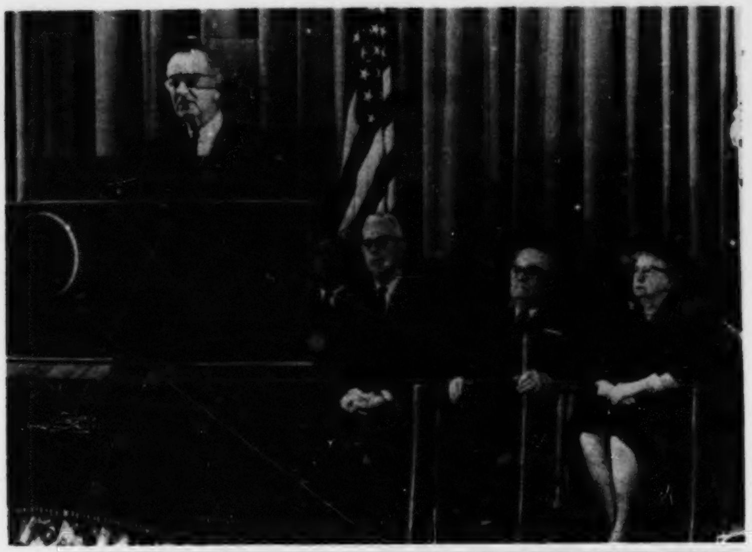
> 1. That the United States increase its commitment to programs of international economic and social development, with special attention given to programs for improvement of nutritional standards and control of population increases.
>
> 2. That the United States assign to the Public Health Service an expanded, more activist role in international health affairs.
>
> 3. That the United States enlarge its commitment to increasing the world's supply of medical manpower and facilities, including the establishment of regional health training centers in Latin America, Africa, and Asia, the establishment of an International Health Corps, and support of health and medical facility construction programs.
>
> 4. That the United States continue to support fully the global disease eradication efforts of the World Health Organization,

> and take steps toward the creation of a Disease Eradication Authority.
>
> 5. That the United States continue and expand its support of international health research, through the use of its own facilities, and the development of research facilities and potential abroad.
>
> 6. That the United States initiate a program of international health education, drawing upon the educational and technological resources of governmental and non-governmental agencies.
>
> 7. That the United States support and encourage participation in international health activities among non-governmental and private organizations. (*27*)

On August 1, 1966, President Johnson appointed a White House Committee chaired by Bureau of the Budget Director, Charles Schultze, and including Special Assistants Walter Rostow and Joseph A. Califano, Jr., to oversee a review of the ICY recommendations. On April 3, 1967, President Johnson made a statement regarding actions on the Conference Recommendations selecting those issues which were high on his agenda: war on hunger, world weather watch, an outerspace treaty, a moratorium on antiballistic missiles, a USSR Consular Convention, East-West trade relations, new directions for foreign assistance, and a nuclear non-proliferation treaty. (*28*)

In his State of the Union Address on January 12, 1966, President Johnson had said he would "follow the five continuing lines of policy that America has followed under its last four Presidents." These were strength; eliminate modern engines of destruction; build those associations of nations which reflect the opportunities and the necessities of the modern world; "help improve the life of man"; and support national independence. President Johnson, as others before him, would conduct a worldwide attack on the problems of hunger, disease and ignorance. (*29*)

He mentioned plans for an International Health Act several times (the first time in his State of the Union Address) before its actual submission to Congress on February 2, 1966. His International Health Act of 1966 would "strike at disease by a new effort to bring modern skills and knowledge to the uncared-for, those suffering in the world, and by trying to wipe out smallpox and malaria and control yellow fever over most of the world during this next decade; to help countries trying to control population growth, by increasing our research—and we will earmark funds to help their efforts." He proposed $1 billion from foreign aid sources



President Lyndon B. Johnson speaking at the Truman Library in Independence, Missouri during ceremonies announcing the establishment of the Harry S. Truman Center for the Advancement of Peace at the Hebrew University in Jerusalem. Behind the President are left to right: Chief Justice Earl Warren, former President Truman, and Mrs. Truman. President Johnson proposed an International Health Act and an International Education Act "to help improve the life of man" (January 20, 1966). (United Press International Photograph courtesy of the Harry S. Truman Library)

for these efforts, and called upon all who had the means to join the United States in this work.

President Johnson referred again to his plans when he spoke at a ceremony at the Harry S. Truman Library in Independence, Missouri on January 20, 1966 in connection with the establishment of the Harry S. Truman Center for the Advancement of Peace at the Hebrew University in Jerusalem. He took for his text that portion of President Truman's Inaugural Address seventeen years previously which announced a "new program for making the benefits of our scientific advances and industrial progress available for the improvement and the growth of underdeveloped areas in the world." This became the Point Four Program of technical assistance enacted in 1949. President Johnson estimated that sums appropriated for Point Four had totaled more than $3 billion. (*30*)

To the Point Four concept of President Truman, President Johnson wished to add the fourth principle of his own State of the Union speech—"to help improve the life of man." Thus, he proposed both an International Health Act and an International Education Act. The latter would develop partnerships between American and foreign schools, recruit teachers for overseas work, and make possible long-term commitments by American universities toward solving the problems of international education, and attacking illiteracy with an exchange Peace Corps.

Johnson's health plans included an international medical mission for the Public Health Service, a tripling of effort to train medical manpower in the developing countries, and a doubling of the size

Table 24.—Analysis of President Johnson's Proposed International Health Act of 1966—International Career Service in Health

Purpose	Program	Target
Increase supply of trained Americans for international health activities.	Public Health Service grants to universities and schools.	1st year: increase by 500 the number of graduate students preparing for international health activities.
Select Corps of International Health Associates.	Public Health Service recruit young professionals in health for assignments at home and overseas—to gain experience with AID, Peace Corps, international organizations.	Recruitment of 100 outstanding young Americans to be the freshman class of International Health Associates.
Development of Leaders	Program of Fellow in International Health for best qualified young Americans with previous experience overseas and capacity for leadership.	50 Special Fellowships.
International Corps in the Public Health Service.	Secretary, HEW, directed to build career service corps.	To sustain international health programs in which this country participates.

Based on: Lyndon B. Johnson, *Public Papers of the Presidents of the United States: Lyndon B. Johnson*, Book I, January 1–June 30, 1966 (Washington, D.C.: U.S. Office of the Federal Register, National Archives and Records Service, General Services Administration, 1967), p. 133.

of the nutrition program for mothers and children (an increase by 80 million of those who would receive adequate diets). He proposed to develop programs so that smallpox could be eradicated from the entire world within a decade. The President stated that "we can eliminate malaria in this hemisphere and large parts of Africa and Asia. We can end yellow fever in this hemisphere, and we can find new controls for cholera, rabies, and other epidemic diseases."

To accomplish these educational and health programs, President Johnson planned to launch a new major attack on worldwide hunger. This would feature a new food aid program, a tripling of United States assistance to investments in modern agricultural technology directed toward special problems of the developing countries, assistance to ensure an effective balance between the number of people and available food, and utilization of the principle of cooperation in working with other countries.

On February 1, 1966, President Johnson sent a special message to the Congress on the Foreign Aid Program. He proposed a two-thirds increase in FY 1967 in AID support of health programs, for a total of more than $150 million. This would finance disease eradi-

Table 25.—Analysis of President Johnson's Proposed International Health Act of 1966—Help Meet the Health Manpower Needs of Developing Nations

[Shortages were noted, not only of physicians but of all health workers—nurses, sanitarians, laboratory technicians, public health workers, health educators, hospital administrators, and others. The ultimate goal is for training to occur within each country. Pending that, the U.S. should assist in relieving critical manpower needs.]

Purpose	Program
More than double present AID program to strengthen medical and health training institutions in developing nations.	Support construction of teaching and laboratory facilities, modernization of teaching materials and methods, and assignment of American facilities abroad.
Enable Peace Corps to recruit and provide more volunteers for service in the health manpower programs of the developing nations.	Expanded recruitment effort. New programs of training. Increased emphasis on health.

Based on: Lyndon B. Johnson, *Public Papers of the Presidents of the United States: Lyndon B. Johnson*, Book I, January 1–June 30, 1966 (Washington, D.C.: U.S. Office of the Federal Register, National Archives and Records Service, General Services Administration, 1967), p. 133.

cation, combat malnutrition, expand community water supply projects, and finance the training of more doctors and nurses needed for new health centers and mobile health units. Almost $150 million was proposed for food-for-work programs and more than $100

Table 26.—Analysis of President Johnson's Proposed International Health Act of 1966—Control and Eradicate Diseases

Purpose	Program	Target
Malaria eradication	U.S. assists 15 malaria eradication programs. PAHO would be strengthened as coordinator of hemispheric attack on malaria. Support efforts of WHO.	Eradicate malaria within ten years from the Western Hemisphere, Ethiopia, Nepal, Jordan, Philippines, India, Thailand, Pakistan, Iran.
Smallpox eradication	Support WHO and special AID programs for 19 West African countries requesting assistance.	Global eradication by 1975.
Reduce hazard of measles.	AID will expand its pilot project in measles immunization in Upper Volta.	Control measles in West African countries within next five years.
Control of cholera and diarrheal diseases in developing nations.	Continued support for U.S. research, cooperative programs with Japan and SEATO Cholera Research Center in East Pakistan. AID will expand worldwide programs to ensure safe water supplies.	More effective means of disease control.
Control animal diseases.	Funds requested to support PAHO in developing and testing vaccines and in control measures against rabies and foot-and-mouth disease.	Increase meat supply more than 25% in a number of developing nations.
Expand U.S.–Japan science cooperation.	Funds requested through HEW to expand program.	Combat some of the major diseases of Asia—leprosy, parasitic diseases, tuberculosis, cholera and malnutrition.

Based on: Lyndon B. Johnson, *Public Papers of the Presidents of the United States: Lyndon B. Johnson,* Book I, January 1–June 30, 1966 (Washington, D.C.: U.S. Office of the Federal Register, National Archives and Records Service, General Services Administration, 1967), p. 133.

million in contributions to international organizations to further support the war on hunger, ignorance, and disease. (*31*)

President Johnson sent his special message to Congress proposing the International Education and Health Programs on February 2, 1966. (*32*)

There were five objectives in the International Health Program:

Create an international career service in health.
Help meet health manpower needs of developing nations.
Combat malnutrition.
Control and eradicate diseases.
Cooperate in worldwide efforts to deal with population problems.

Table 27.—Analysis of President Johnson's Proposed International Health Act of 1966—Combat Malnutrition

[The Food for Peace programs reach about 100 million people. The U.S. has put further resources into international organizations such as the Food and Agriculture Organization, UNICEF, and the World Health Organization. It was estimated that by 1967 nearly 270 million of the world's children would suffer from malnutrition.]

Purpose	Program	Target
To increase the number of infants, children, and mothers receiving adequate diets.	Establish Head Start Nutritional Program under Food for Peace Program. Enlarge AID program for enriching milk and other Food for Peace commodities with vitamins and minerals.	
Provide training in nutrition.	Congress to appropriate funds for AID to support training in U.S. for nutrition specialists from developing countries. Support training institutions now established in 27 nations.	Training manpower in developing countries—professional, technical and administrative—for effective nutrition programs.
Expand research on malnutrition.	Funds requested for AID to expand basic and applied research in these areas.	Increased knowledge on effects of nutritional deficiency, application of technological advances, develop new resources of protein.

Based on: Lyndon B. Johnson, *Public Papers of the Presidents of the United States: Lyndon B. Johnson*, Book I, January 1–June 30, 1966 (Washington, D.C.: U.S. Office of the Federal Register, National Archives and Records Service, General Services Administration, 1967), p. 133.

Tables 24 through 28 present my characterization of his five objectives in terms of purpose, program, and target.

The budget for both the International Education and Health Acts totaled $524 million for the first year:

> $354 million in the foreign assistance program.
>
> $103 million in the Health, Education, and Welfare Department program.
>
> $11 million in the Peace Corps program.
>
> $56 million in the State Department cultural and education program.

It was stipulated that these programs were to be conducted in a manner consistent with the balance of payments policy.

The proposed International Health Act of 1966 had both governmental and nongovernmental support, including the Secretary of HEW, the Surgeon General, the American Public Health Association, the Association of American Medical Colleges, and the American Medical Association. The Bill was not reported out from the Rules Committee. The International Education Act of 1966 was

Table 28.—Analysis of President Johnson's Proposed International Health Act of 1966—Cooperate in Worldwide Efforts to Deal with Population Problems

["We must meet these problems in ways that will strengthen free societies—and protect the individual right to freedom of choice; we must mobilize our resources more effectively." JOHNSON.]

Purpose	Program
Expand research in human reproduction and population dynamics.	Increase research efforts through the HEW, AID, and WHO in pace and scope.
Train American and foreign specialists in the population field.	New and expanded HEW training programs at home and abroad to be developed by HEW.
Assist family planning programs	Share knowledge, skill, and financial resources with developing nations requesting assistance.

Based on: Lyndon B. Johnson, *Public Papers of the Presidents of the United States: Lyndon B. Johnson*, Book I, January 1–June 30, 1966 (Washington, D.C.: U.S. Office of the Federal Register, National Archives and Records Service, General Services Administration, 1967), p. 133.

passed by Congress and signed by the President on October 29, 1966, but it was not funded.

President Richard M. Nixon

> . . . What we have tried to do, of course, is to find a way to have disagreements without fighting about those disagreements, and what we have tried to do also is to find areas where we can agree and where we can cooperate . . .
>
> In fighting disease, I have found that both in my conversations with Premier Chou En-lai and my conversations with Mr. Brezhnev, Kosygin, Podgorny, and their colleagues, that this was one area where there was no question of the desire to work together, to cooperate. It, of course, will not be easy. (*33*)

It was this philosophy which provided the rationale used by both the President and the Secretary of State to promote Joint Economic Commissions and bilateral agreements in which health is

President Richard Nixon (left) and Soviet President Nikolai Podgorny sign the Agreement May 23, 1972 for joint action against cancer, heart disease, and air and water pollution. Other leaders standing behind them in the Kremlin's Vladimir Hall are left to right: Alexei Kosygin (behind President Nixon), Leonid Brezhnev (behind President Podgorny), and Andrei Gromyko (with head turned toward President Nixon). (United Press International Photograph)

either a component or the sole subject. Relationships were developed with the USSR for reasons of detente, with Egypt in the midst of discussions for a settlement in the Middle East, and with Spain while negotiations were underway for a collective defense effort.

Secretary of State Kissinger was instrumental in establishing Joint Commissions with India, Iran, Saudi Arabia, and Tunisia. Some of these have health components; others are potential vehicles for future health developments. United States bilateral agreements are discussed in Chapter VI.

President Nixon's Special Message to the Congress on Health Programs, February 20, 1974, "recognized that health problems are universal and that their solution requires international collaboration." (*34*) This collaboration included the WHO and direct work with many countries, in particular the USSR.

President Nixon also included a comment on the elimination of smallpox.

> Finally, I am pleased to report that one of the most successful efforts ever undertaken to improve world health will soon realize its goal—the global eradication of smallpox. This is an activity originally endorsed and consistently supported by the United States.
>
> The Eighteenth World Health Assembly in 1965, at the initiative of the U. S. Delegation, adopted a resolution declaring a worldwide eradication of smallpox a major World Health Organization objective. When the program began in 1966, 45 countries reported smallpox. At the end of 1973, this number had been reduced to 11. In 1966, smallpox was endemic in 25 countries. Today it is endemic in only four. In the Americas, where smallpox was a devastating disease for centuries, not a case has been reported since April 1971.
>
> As a result of this global effort, the probability of contracting smallpox in the United States today is virtually non-existent. There has not been a documented case of this disease in the United States since 1949.
>
> Because of these dramatic results, our Public Health Service has decided that routine immunization of children should no longer be required. (*35*)

A commitment of United States national resources within a foreign policy setting and without prior concurrence or even knowledge on the part of the Federal Agency was given by Secretary of State Kissinger before the Fourth Ministerial Meeting of the United Nations Conference on Trade and Development (UNCTAD). The Secretary was speaking of technology for development:

> The second element of our program is to improve the amount and quality of technological information available to developing countries and to improve their selection of technology relevant to their needs. We will support the efforts of the U. N. International Center for Exchange of Technological Information to provide comprehensive information on the capabilities and facilities of national and regional information services. For its part the United States will inventory its national technological information resources and make available, both to developing countries and to the U. N. Center, consultants and other services to improve access to our national information facilities. These include the National Library of Medicine, the Division of Scientific Information of the National Science Foundation, the National Agricultural Library, and the Smithsonian Information service. [*sic*] (*36*)

President Jimmy Carter

> Public health has been a particular concern of mine for many years. My mother is a nurse, and my wife is deeply committed to improving health services . . .
>
> In my speech to the United Nations General Assembly several weeks ago, I emphasized our commitment to basic human rights. These include the right of every human being to be free from unnecessary disease.
>
> To work toward that right, we will offer to share our medical know-how with all nations, regardless of politics or ideology. We will work together to control disease, improve nutrition, and raise the quality and productivity of life throughout the world. (*37*)

The foregoing was part of President Jimmy Carter's message to the Thirtieth World Health Assembly, May 10, 1977. In this message, President Carter stated that " . . . I will strive personally to find ways in which our government and the private sector can better cooperate with other nations on health, population, and nutritional needs." Included were specific references to the early warning of impending disease outbreaks, the gap in health and productivity between developed and developing nations, the linkage of health and economic development, United States support of WHO's expanded immunization program and of WHO's new program of research in tropical diseases. President Carter considers health and the freedom from unnecessary disease to be a basic human right. He has also emphasized the role international health can play in improving relationships with other countries, particularly those whom we do not recognize diplomatically.

Dr. Halfdan Mahler, Director General of the World Health Organization meeting with President Jimmy Carter at the White House (1977). (Courtesy of the Pan American Health Organization)

Dr. Peter Bourne and New Initiatives

In 1977, the President's Special Assistant for Health Issues, Dr. Peter Bourne, requested suggestions on new initiatives from Departments and Agencies. He also undertook a study in 1977 on "Foundations for a New United States International Health Policy: Assessment of Problems, Programs, Resources, and Opportunities." The Study Director was Gerald Fill and five working groups were established: Strategy Development, chaired by John Daly; Commerce and Finance, chaired by Robert Emrey; Research and Development, chaired by Donald Hopkins, M.D.; Health Manpower, chaired by L. F. Krystynak; and Private Sector, chaired by Gabriel Rudney. Over 100 professionals participated. The study was used as the basis of a Decision Memorandum to the President, which was not released. The results of the study were published two years later in April 1979 under the title "New Directions in International Health Cooperation." (*38*)

Dr. Bourne's views had been reflected in an address before the American Public Health Association. He made a twelve-point proposal which he believed would "provide a framework for establishing a government-wide international health policy." His suggested actions, in summary were:

1. Obtain executive and legislative commitments "to support international health as a viable public policy instrument."
2. Establish a "central focal point for policy formulation and coordination on a government-wide basis." Integrate international health into foreign policy machinery and strengthen State, AID, HEW, Treasury, Commerce, and the Peace Corps.
3. Enroll Department of Defense (DOD) in health missions for peaceful purposes.
4. Formulate reasonable and achievable short and long-range goals in health, nutrition, and family planning with developing and developed countries and international organizations.
5. Establish a focal point in government to handle private sector affairs and establish private voluntary organization liaison offices in all United States missions abroad.
6. Require an annual international health report to the President and Congress.
7. Assess career and personnel systems to improve our capacity to evaluate technology transfer.
8. Require total and periodic inventories of United States capabilities and resources in international health; the United States Government would serve as a clearinghouse for workers in international health throughout the world.
9. Revise HEW and PHS charters for special authority for global health activities.
10. Re-orient and expand HEW, DOD, AID and private sector health manpower training programs to meet the requirements of developing nations.
11. "Harness our immense research talents to grapple" with world disease.
12. Organize an effective constituency to support sustained international health efforts.

One of the policies proposed by Dr. Bourne was that of "medical diplomacy," and that the United States should reject the notion of using health sanctions in bilateral diplomacy. He gave some illustrations of steps already taken by the Carter Administration:

> . . . we approached the Union of Soviet Socialist Republics to explore possible trilateral health assistance programs in underdeveloped countries.

> At our urging, the State Department is examining the potential of providing life saving drugs to the Government of Cuba . . . Furthermore, I have encouraged the National Library of Medicine at the National Institutes of Health to make its resources available to the Cuban Minister of Health and to ease the decrease in the flow of scientific literature to that country. (*39*)

To achieve his program of medical diplomacy, Dr. Bourne suggested that there needs to be a mechanism to help "plan and coordinate the variety of programs supported by the United States Government directly or indirectly through multilateral organizations."

On February 17, 1978, James T. McIntyre, Jr., then Director Designate, Office of Management and Budget, and Dr. Bourne sent a letter to Joseph A. Califano, Jr., Secretary of HEW, stating that "The President has approved the broad concept of an international health initiative as outlined in Peter Bourne's memo of January 9th." Mr. McIntyre and Dr. Bourne referred to the President's State of the Union Message which promised to "present a strategy this year for working directly with other nations and through international organizations to raise the standards of health and nutrition around the world." This was viewed by Mr. McIntyre and Dr. Bourne as an important component of the United States commitment to increase foreign aid through 1982. Dr. Bourne and Mr. McIntyre initiated a twofold process: (1) to identify and highlight activities underway and (2) to focus current United States Government activities in international and multilateral organizations. It was their intent to develop a broad policy statement which would include the humanitarian goals and specific areas of the President's concern.

Their statement of strategy was reviewed and discussed by many Departments, not all of whom have agreed with the content and approach. There have been three specific steps which reflect the extensive and intensive activity underway: the President's statement of principles on May 2, 1978; Secretary Califano's serving as Chairman of the United States Delegation to the World Health Organization (May 1978 and May 1979); efforts to identify funds to transform United States statements of interest and intent to actual operating programs.

There are 33 recommendations in Dr. Bourne's published study. The first recommendation from which the others flow is ". . . that international health be elevated to an active and positive concern of all U. S. Government agencies, and particularly, that in the

State Department, international health should play a strong role in the basic human needs strategy of U. S. foreign policy." (*40*) Other recommendations relate to "international relations and health diplomacy"; "health of U. S. citizens"; "private-sector involvement"; "finance and commerce"; "U. S. research and international health"; "development and supporting assistance"; "health manpower for international health programs."

Dr. Bourne recommended the following actions on health research:

> The United States should adopt an overall administrative and program strategy for cooperation with other countries in international health research, supporting both long-term basic research and applied research. This strategy should emphasize development and transfer of methods and technology that can be sustained in developing countries;
>
> Programs should be coordinated between agencies, though present methods of sharing effort are valuable. Specific legislative authority should be developed to upgrade the existing Fogarty International Center at NIH, making it a more visible focus as a center for the development of international health policy. Clear program priorities should be set, taking into account impact and potential for further research possibilities. Programs should focus on such areas as rural health care, health planning and management, the development of simplified epidemiological techniques to identify and alleviate malnutrition and its causes, development and use of vaccines, prevention and cure of blindness, improvement of water supplies and waste disposal, and birth control. Once established, these programs should be carefully monitored;
>
> The United States should provide increased funds to train more researchers and should expand its foreign research programs and facilities, in cooperation with existing foreign programs;
>
> Legislation should be sought to make Federal agency authority more specific and positive, and to foster greater pharmaceutical industry involvement in international health research. (*41*)

On May 2, 1978, President Carter issued a statement on international health in which he said that "The United States, in partnership with international organizations and with other countries, must develop a truly international program to improve worldwide health, nutrition and family planning." He described the aim of his Administration's review of international health needs to "determine the most effective ways in which the U. S. government and private organizations could help reduce the personal and economic impact of widespread malnutrition, infectious diseases, and other health hazards including those associated with frequent childbirth."

He then announced his "intention to launch a program to strengthen the participation of the United States in worldwide efforts to overcome disease and ill health . . . based on the following principles:

> A basic minimum level of health, nutrition and family planning services should be available to the world's poor, whether they live in rural areas or urban slums.
>
> Developing nations can eventually meet their own health needs if we assist them in strengthening their institutions and building their own health systems.
>
> Community based primary health care, including the use of community resources and the training of appropriate health personnel as near as possible to where they will deliver services, is the most effective means of achieving the standards of health we desire for all people.

The stated objective is to concentrate on preventing disease and ill health with:

> . . . special emphasis on providing clean drinking water, basic sanitation, basic immunizations, and efforts to prevent and treat blindness. This emphasis will be reflected in our own programs and in our support of priorities established by various international organizations.
>
> We will work toward the lasting control or eradication of the major infectious diseases, particularly "tropical" diseases that continue to be the leading causes of death and disability.
>
> We will give special attention to the major causes of death in children—diarrhea and respiratory disease, particularly when aggravated by malnutrition.

President Carter ascribed to private industry the role of "exercising initiative and careful judgment in developing needed products and in helping to make sure they are used wisely to improve health in the developing world."

In recognizing the contributions of voluntary organizations, he stated that "We will strive to aid them in their efforts and to coordinate our activities."

In his words, President Carter's proposed actions were to:

> Strengthen institutions in our government which are dealing with international health problems, re-emphasizing our commitment to help meet the health needs of other nations and improve the use of existing resources through better coordination.

> Build greater awareness among the American people of the legitimacy and the importance for our foreign policy goals of improving other people's capacity to meet their basic human needs.
>
> Work closely with nations around the world, individually and through organizations such as WHO, UNICEF, the World Bank, and the regional development banks, to improve the health of people everywhere.
>
> More fully involve American universities, technological foundations and other private organizations in making U. S. scientific and professional resources more accessible to the developing world.

President Carter declared his "personal commitment to the goal of a world free from unnecessary disease, a world in which life is held sacred, and in which children born anywhere on earth have the same chance to grow up to enjoy a healthy, fulfilling life." (42)

The World Health Organization

President Carter asked Joseph Califano, Jr., Secretary of HEW, to lead the United States Delegation to the 1978 World Health Assembly (WHA) where the Secretary would describe further President Carter's strategy which "will be developed as part of our budgetary and legislative recommendations for next year. Where possible, however, we will move immediately to carry out this program."

In his 1978 address to the WHA, Secretary Califano described five areas, based on President Carter's principles, in which the United States "is re-dedicating itself and, where possible, increasing its contributions":

> First, we want to commit new resources to the battle against infectious diseases . . .
>
> Second: The United States will participate in efforts to bring safe water and basic sanitation to more of the world's people . . .
>
> Third: We will work to overcome the nutritional problems which affect so many of the world's people, both in less-developed and more-developed nations . . .
>
> Fourth: We will support worldwide efforts to prevent and treat blindness . . .
>
> Fifth: We will promote new efforts to extend primary health care. (43)

Table 29.—International Health Areas for United States Renewed Efforts—
Analysis of Speech to World Health Organization by Secretary of HEW, Joseph Califano, May 1978

Programs	U.S. Activities, May 1978	Proposed Increased U.S. Effort
Infectious Diseases	Support WHO Special Program for Research and Training in Tropical Diseases.	Pledged $20.3 million over next five years.
	Research in U.S. institutions	Increase in training in tropical disease by establishing in cooperation with WHO a postdoctoral fellowship program for scholars to study in the United States.
	Development of malaria vaccine and more effective malaria drugs.	
		NIH will help establish and strengthen research centers in developing countries.
		Participate with WHO in developing Global Epidemic Surveillance Service by (1) helping WHO develop training program for physicians and field offices from developing countries (2) cooperating in establishing disease-control services in individual countries (3) providing epidemiological support to Tropical Disease Research Centers in Ndola and Kuala Lumpur.
	Collaboration with individual countries on disease control projects.	Yaws: U.S. work with WHO and other nations on surveillance and control measures.
		Expanded program on immunization by increasing numbers of U.S. epidemiologists and international health workers to join developing nations' efforts.
		Bilateral immunization program in cooperation with WHO.
		$200,000 to Voluntary Fund for Health Promotion to support WHO Expanded Program on Immunization.

		AID/HEW exploration of multi-year immunization program for African region.
Safe Water and Basic Sanitation.	Committed to goals of 1980–1990 United Nations Decade for Drinking Water and Sanitation. Improve technology of water and sanitation systems. Disseminate information on technology applications.	U.S. participation in efforts to bring safe water and basic sanitation. Plan to launch new activities in manpower and management training. Proposal to cooperate with others in epidemiological studies on relationships among water, health and disease.
Environmental Hazards	Working with WHO on toxic effects of chemicals and pollutants in air, water, food and at work.	Share U.S. experience.
Nutrition	Cooperation with WHO, FAO and UN agencies and individual countries to make nutrition policies and goals part of overall social and economic planning. U.S. support for international nutrition programs increased from $5 million to $50 million annually over past six years. U.S. research on infant nutrition and breast feeding, on nutritional problems of various racial and ethnic groups, and nutritional origins of adult disease.	
Blindness	Prevention and treatment programs	Support worldwide efforts to prevent and treat blindness. U.S. support of programs for blindness as part of all primary health services per International Agency for Prevention of Blindness recommendations.

Table 29.—International Health Areas for United States Renewed Efforts—Analysis of Speech to World Health Organization by Secretary of HEW, Joseph Califano, May 1978—Continued

Programs	U.S. Activities, May 1978	Proposed Increased U.S. Effort
Primary Health Care	AID for FY 1978 spends $160 million for research, training and services in family planning worldwide.	Promote new efforts to extend primary care. U.S. AID will expand over next five years current expenditures of $70.4 million for primary health care projects, such as maternal and child health services, nutrition, and family planning per local culture and customs.
	Peace Corps efforts	Explore possibility of expanding Peace Corps' health efforts through an International Health Service Corps to assist in community-level health projects and increase supply of local health manpower. Participate in WHO's Special Program of Technical Cooperation in Mental Health. Participate in Alma Ata Conference on Primary Health Care, September 1978.

Based on: Joseph A. Califano, Jr. Address to the 31st World Health Assembly, Geneva, Switzerland, May 9, 1978.

Table 29 summarizes from Secretary Califano's speech the status in 1978 of United States activities and the proposed increased resources for five major program areas. Pledges for funding were made of $20.3 million over a five-year period to support the WHO Special Program for Research and Training in Tropical Diseases and $200,000 for the WHO Expanded Program on Immunization.

Secretary Califano identified two additional challenges: "Developing the infrastructure for health systems" and "Non-infectious threats to health . . . cardiovascular disease and cancer . . . accidents and drug abuse."

In order to use more effectively both private and governmental resources, Secretary Califano stated that the United States will seek to increase support for:

> . . . our universities and institutions, and for institutions in developing countries to strengthen their capabilities for research, training, and the effective delivery of health services.
>
> . . . training, for both our own people and those from developing countries, who can work as research scientists, educators, and providers of health care.
>
> . . . international activities of our own governmental agencies, whose competence should be more readily available to international health activities.

Working groups, established in 1977, had devoted considerable activity and time to the development of plans and priorities. The four working groups were: (1) Initiatives for Developing Countries, chaired by AID, (2) Scientific and Manpower Development, chaired by HEW, (3) Multilateral Agencies, chaired by State and (4) United States Commerce and International Health, chaired by the Department of Commerce. There was HEW representation on all four working groups. These Groups did not continue after Dr. Bourne's resignation from the Government in 1978.

Secretary Califano led the United States Delegation to the World Health Assembly again in 1979. Mrs. Rosalynn Carter accompanied the United States Delegation and addressed the WHO Medical Society. She described the study of the United States Presidential Commission on Mental Health and its recommendations with an extension of these observations to the international scene in an address entitled "Mental Health and World Welfare: Progress from Hope to Reality."

Secretary Califano's remarks were specifically related to the goal of health for all by the year 2000 endorsed at the Alma Ata

International Conference on Primary Health Care in September 1978. He referred to the need to overcome obstacles presented by malaria, diarrheal diseases, rapid population growth, and low birth weight in newborn babies. Improvements were needed in organizing and managing health services, epidemiological surveillance systems, primary health care systems, and the linkage of health with other sectors of social and economic development. The greatest difficulty of all in Secretary Califano's view was the lack of political will to apply knowledge and resources.

The Secretary commented on three other topics closely related to political considerations. He deplored the difficulty in the payment of United States 1979 contribution due to an amendment to the Department of State appropriations, but assured the Delegates that legislative efforts were underway with Congress to permit the United States to make its contribution. The Secretary did, how-

U.S. Delegation to the World Health Assembly (1979), left to right: Dr. John Bryant, Director, Office of International Health, Public Health Service; Peter Bell, Deputy Under Secretary, HEW; Dr. Julius B. Richmond, Assistant Secretary for Health and Surgeon General, HEW; Joseph A. Califano, Jr., Secretary of Health, Education, and Welfare. Behind, left to right: Dr. Thomas Malone, Deputy Director, National Institutes of Health; Dr. Lee Howard, Director, Office of Health, Agency for International Development; Mrs. Dorothy Rice, Director, National Center for Health Statistics, HEW; and Dr. Jorge Chiriboga, Assistant Secretary for Environmental Health, Government of Puerto Rico. (Courtesy of the United States Public Health Service)

ever, reiterate the United States position that "except under specific criteria, technical assistance programs should be funded through voluntary contributions, rather than through assessed budgets." A topic of particular importance to developed nations was low-level radiation and the accident at a nuclear power plant at Three-Mile Island, Pennsylvania. President Carter had declared as policy that the United States would share globally information obtained through research and experience on health risks and health hazards of low-level radiation. The third item related to the disputes among the Arab States and the Israelis and the Egyptians. The Secretary made a plea that these items not interfere with the basic purpose and objectives of the World Health Organization, and in particular with its efforts to achieve the goal of health for all by the year 2000.

An addendum to the Secretary's speech contained a status report concerning United States commitments and activities since the last World Health Assembly. These are summarized in Table 30.

Table 30.—Status Report on United States Renewed International Health Efforts, May 1979

Programs	1978/1979
Infectious Diseases	AID[1] will provide $2 million to WHO TDR[2] Program. AID $65 million to 26 countries for malaria, schistosomiasis and onchocerciasis. Drug development by Walter Reed Army Institute of Research in collaboration with WHO. Vaccine development (AID, DOD[3]) (malaria, dengue). NIH[4] International Cooperation Infectious Disease Research—tropical disease research centers in developing countries. NIH domestic research grants; $5 million tropical diseases. NIH Postdoctoral Fellowship Programs in tropical diseases.
Diarrheal and Venereal Disease	CDC[5] staff to WHO. Support for International Center for Diarrheal Disease Research (Bangladesh).
Epidemic Surveillance Services	Activities in Southeast Asia and Latin America.
Yaws—Immunization and Yaws Control.	AID/CDC with four African countries. $5 million Expanded Program (bilateral and multilateral). CDC $200,000 to WHO.

Table 30.—Status Report on United States Renewed International Health Efforts, May 1979—Continued

Programs	1978/1979
Water Sanitation and Environment	AID $300 million in 47 countries. U.S. participation in WHO's environmental program.
Nutrition	Presidential Commission on World Hunger created. AID support in 36 countries for integrated health delivery projects including nutrition components. NIH, CDC programs.
Family Planning and Population	U.S. domestic $200 million annually. AID international $200 million. U.S. requested allocation $2 million in 1979–80 to WHO Program, Research, Development and Research Training in Human Reproduction.
Primary Health Care	AID plans 50 projects in 36 countries for $90 million (1980). Peace Corps activities.
Prevention of Blindness	NIH plans 3-year $450,000 program with WHO. AID $5.3 million on programs on Vitamin A deficiency and blindness (1980).
Mental Health	NIMH[6] $500,000 in five African countries.
Coordination of International Health Activities.	HEW International Health Policy Board. Intergovernmental Coordination body. Potential creation of Institute for Scientific and Technological Cooperation.

[1] Agency for International Development
[2] Tropical Disease Research
[3] Department of Defense
[4] National Institutes of Health
[5] Center for Disease Control
[6] National Institute of Mental Health

Based on: Joseph A. Califano, Jr. Address to the 32nd World Health Assembly, Geneva, Switzerland, May 8, 1979.

Those proposals requiring new funds in FY 1980 were not approved by Congress. These included the $5 million in the CDC request for international health activities and $3.2 million for technical assistance and related activities in the influenza immunization program and the $2 million increase for the Office of International Health.

Congressional Initiatives and Studies

The multiplicity of Congressional Committees concerned with either international or health matters is another factor in the decision-making process. In both Houses there are committees concerned with legislation, Government operations, foreign affairs, aid, and appropriations.

The following are some Congressional initiatives over the past twenty years which have had or may have an impact.

The Future of International Medical Research (1959)

Senate Resolution 347, of the 85th Congress and Senate Resolution 43, 86th Congress called for "a complete study of any and all matters pertaining to international health, research, rehabilitation, and assistance programs . . . and the coordination of programs related to international health."

This resulted in a most comprehensive and extensive examination (1959) by the Subcommittee on Reorganization and International Organizations of the Senate Committee on Government Operations. The Subcommittee chaired by Senator Humphrey addressed broad policy questions. It was "not within the jurisdiction of the Committee to consider at the present time any specific legislation or to consider questions of appropriations. Both such matters are within the jurisdiction of other committees of the Senate . . ." but the Committee "is responsible for matters relating to 'budget and accounting, other than appropriations.' "

Hearings were held at home and abroad; considerable data were collected on the statutory bases for programs, nature and kinds of programs, funding, etc. The Subcommittee examined not only what was underway, but attempted to identify "long-range trends, opportunities and problems" which would have potential impact on both governmental agencies and international governmental organizations with programs in international medical research and international assistance.

The Subcommittee observed the diversity of activity, the difficulty of separating "domestic" from "international," and that "health research has tended to grow faster and in more directions than the explicit authority for such activity."

A series of publications were produced which are worthy of scrutiny today. (*44–51*) However, there were no tangible results which can be traced directly to these hearings. The fact that a

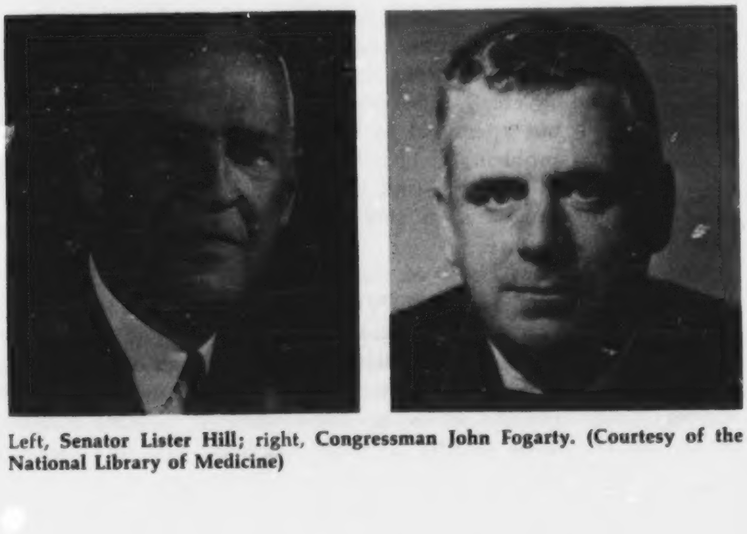
Congressional Committee would spend this time and effort did identify international biomedical research as an entity of potential value, although the latter was not quantified in terms of specific appropriations.

International Health Research Act of 1960

The history and disposition of this Act illustrate some practical problems which persist today (Chapter IV, pp. 149–52).

On January 23, 1958, Senator Lister Hill spoke to his colleagues in the Senate on initiating a dynamic program of health for peace. The first step suggested was a supplemental budget increase for research against cancer and heart disease for Fiscal Year 1959 and a request that the President submit a long-range research program (perhaps five years) against these two diseases. His next four proposals were international in character and all related to cancer and heart diseases: (1) expanded United States participation in international programs; (2) new initiatives in planning international research; (3) an official exchange program between American and Russian scientists; and (4) plans for an international clearinghouse of medical information. This last suggestion was expanded by Senator Hill to include "all major illnesses which plague humanity."

On August 13, 1958 Senator Hill introduced a bill (S.J. Res. 199) which provided for a National Advisory Council for International



Left, Senator Lister Hill; right, Congressman John Fogarty. (Courtesy of the National Library of Medicine)

Medical Research under the chairmanship of the Surgeon General in HEW; a National Institute for International Medical Research as part of the National Institutes of Health; and authorized a $50 million annual budget for NIH international medical research.

The proposed legislation was consistent with the philosophy of President Eisenhower's State of the Union Address to Congress on January 9, 1958. It was Senator Hill's intent to establish and provide a funding base for "the domestic machinery which will make possible the maximum organization of the nation's health research resources for more efficient cooperation with international organizations in the field of medical research."

Senator Hill indicated there was a critical need for concerted international planning, programming and conduct of research, a much greater flow and exchange of information, and an expanded program of training of research personnel. Senator Hill contrasted his requested $50 million for international health research to the total domestic expenditure of $400 million for medical research in the United States by the Federal Government, university laboratories, private foundations, and private corporations. Senator Hill also noted the $40 billion for defense which had just been voted in Conference. (52)

A bill identical to that of Senator Hill was introduced in the House of Representatives (H. J. Res. 698) by Congressman John Fogarty.

Senator Hill stated some goals:

> (1) To mobilize internationally the world's research facilities and personnel in ascertaining the cause, cure and control of those diseases which are still outside the reach of science.
>
> (2) To facilitate and enlarge the free and rapid interchange of scientific knowledge and of research workers so that all countries of the world might obtain the benefits of the newest developments in research.
>
> (3) To make progress in our knowledge and use of the means to return to active life the disabled and the physically handicapped.
>
> (4) To organize an international clearing house on the latest developments in medical research, including the establishment of appropriate translation services.
>
> (5) To raise a common banner under which the scientists of all lands can march together toward the goal of improved health for mankind.

The Senate Joint Resolution 199 was received and referred to the Committee on Labor and Public Welfare.

The bill was reintroduced and the Senate passed S.J. Res. 41 in May 1959 by a vote of 63–17. However, the Administration opposed the bill and the House Committee eventually changed the bill. According to Congressman Fogarty, in comments on the floor of the House, the bill was opposed "not in principles or purpose, mind you, but—and this is a familiar pattern—because its specific provisions were considered undesirable." (*53*)

Congressman Fogarty detailed the objections: too much money; a new institute at the NIH for its administration was unnecessary; the international program authorized by the bill was considered to be a foreign policy matter; and the proposed program should be linked with the Department of State and the International Cooperation Administration and executed under the immediate supervision of the President. Congressman Laird's position was that the bill provided nothing new and was therefore unnecessary.

Congressman Fogarty responded:

> As it stands, House Joint Resolution 649 does not in essence add to or change the present authorities of the Surgeon General and the President to support medical research overseas. It does add to the authorities of the Secretary in this respect, particularly in the case of the Children's Bureau. . . . The important action that will result from the passage of this bill will be the explicit expression of this House that the United States does have a substantial stake in the furtherance of medical research overseas and in collaboration with other countries.

House Joint Resolution 649 passed with 259 yeas including those of Congressmen Fogarty and Rogers and 14 nays including that of Congressman Laird. There were 58 who did not vote. It was approved by the Senate and became PL 86–610, the International Health Research Act of 1960.

The Act retains mention of a National Institute for International Research as an objective, but no provision is made for the establishment of such an institute. The Act distinguished between activities for the benefit of United States health science and those for international health science. The authority to advance the status of health science in the United States through cooperative endeavors with other countries in health research and research training rests with the Secretary of the Department of Health, Education, and Welfare. The National Institutes of Health, the National Library of Medicine, and other HEW components use this Act as a legislative base for certain of their international activities.

The authority to advance the international status of health science through cooperative enterprise in health research, research planning, and research training, rests with the President of the United States. This relates to cause, diagnosis, treatment, control, and prevention of diseases and impairments of mankind, including nutrition. This authority "shall not extend to support of public health, medical care, or other programs of an operational nature as contrasted with research and research training." It does, however, sanction the "science of public health and of public health administration."

This distinction between objectives for the conduct of international activities with authority divided between the HEW Secretary and the President controls and even prevents increased international involvement. The requests for and the actual delegation of authority under this legislation are discussed in Chapter IV, page 152.

Proposed International Health Agency Act of 1971

Congressmen Hugh Carey and Donald Fraser introduced H.R. 10042, the International Health Agency Act of 1971; this was amended and introduced as S. 3023 by Senator Jacob Javits. They proposed an International Health Agency to be established by the President who would be responsible for supervision and general direction of programs. The Chief of the United States Mission in each country would serve as a Coordinator.

The Act called for $25 million annually for FY 1972 through FY 1976, for greater involvement in health services and assistance to developing nations. Hearings were held by the Subcommittee on International Organizations and Movements of the Committee on Foreign Affairs, House of Representatives, and by the Special Subcommittee on International Health, Education and Labor Programs of the Committee on Labor and Public Welfare, Senate.

State and HEW were agreed in their opposition to the bill, but for different reasons. The objections by State were on foreign policy grounds, and by HEW because the International Health Agency would be separate from HEW.

The Committee commented on the continual opposition by HEW to legislation which Congress proposed and invited HEW to submit its own suggestions for new legislation in international health.

HEW Proposed Legislation

HEW drafted legislation which would permit the Public Health Service and its Office of International Health to make grants and contracts, engage in broad cooperative and collaborative ventures in international health, and relate not only to the developed but to the developing world. This was opposed by the Office of Management and Budget on the grounds that HEW could work within the framework of the existing authorities of the Department of State and the Agency for International Development; and, consistent with Administration practice and policy, increased funding was not to be encouraged.

Proposed International Health Agency Act of 1975

On January 23, 1975, H.R. 1891, the International Health Agency Act of 1975, was introduced by Senator Spark Matsunaga and was referred to the Committee on Foreign Affairs. The bill was intended "to permit greater involvement of American medical organizations and personnel in the furnishing of health services and assistance to the developing nations of the world, and for other purposes."

Again HEW opposed a separate international health agency and emphasized that it would be isolated from HEW health programs, would potentially overlap with State and AID, and would not only be unnecessary but detrimental to health interests internationally. HEW Under Secretary Marjorie Lynch commented:

> The Department of State and the Agency for International Development have the primary role and responsibility in our humanitarian assistance to other countries through the field of health. Nevertheless, the Department of Health, Education, and Welfare makes a major contribution to their programs through the provision of technical assistance, the assignment of individuals to foreign posts, and assistance in coordinating their activities with those of international organizations such as the World Health Organization . . . The present legislation under which the Department of Health, Education, and Welfare, the Department of State, and the Agency for International Development operate health programs internationally is fully adequate to permit these programs to serve well both the interests of the United States and those of other countries.

HEW had now adopted the OMB position that HEW did not have a primary role in international health activities for humanitarian purposes and that the combined legislative authorities of HEW, State and AID were adequate.

Public Health Service Appropriation Act Amended to Fund Studies

Congressman Paul Rogers and Senator Edward Kennedy initiated an amendment to the FY 1978 Appropriations Act for the Public Health Service which required HEW to provide financial support to the National Academy of Sciences-Institute of Medicine (NAS-IOM) for studies on international health issues and opportunities. To be examined were biomedical and behavioral research, health services research, health professions education, immunization, and public health activities, and other areas that might improve United States and other nations' capacities to prevent, diagnose, control, or cure disease and to organize and deliver effective and efficient health services.

Institute of Medicine Study

Report of a Study—Strengthening United States Programs to Improve Health in Developing Countries was issued in 1978 by the Committee on International Health, Institute of Medicine, National Academy of Sciences. (54) The sixteen-member committee of experts in medicine, health and international affairs was drawn from the academic, private, and industrial sectors. Participating in special workshops, writing working papers, and serving as consultants were 42 additional individuals, primarily from the academic sector. Two individuals from the National Institutes of Health participated in the workshops, and representatives from the World Bank, WHO, and PAHO wrote working papers. Thus, of the 58 experts involved in this study, only two were United States Government officials, although some of the others had previously served with the United States Government, including Dr. Ivan Bennett who was Deputy Director of the Office of Science and Technology (OST) 1966–69, and Dr. James Grant, Deputy Director, International Cooperation Administration (ICA) 1958–61.

The study identifies principles for United States international health programs, policy and organizational problems, and major health problems of the developing world; and it makes three general and many specific recommendations. In his preface, Dr. John Bryant, Chairman of the Committee, characterized the principal contributions of the report as follows:

> (1) to identify the major policy and organizational problems and constraints which currently hamper the U. S. government's international health activities and to make some general recommendations to deal with them—recommendations which will require action both by the Congress and the Executive Branch; and (2) to identify the major health problems of the developing countries and to suggest areas in which U. S. international health activities could be broadened to address these problems.

The Institute of Medicine study attributes United States involvement in international health to three motivations. The first two are of long standing—common health hazards of a regional or international nature and "compassionate concern for disaster victims and the poor and the needy." The third motivation is the interdependence of United States economic well-being with that of other nations—the conservation of natural resources, and the reduction of environmental hazards.

Substantial improvements in health in the developing countries rest principally with the countries themselves, with their policies, resource commitment, and technical and administrative capabilities. IOM recommended that a major objective of United States programs should be the growth of self-reliance in the developing countries and that one should speak in terms of technical "cooperation" rather than technical "assistance."

Five principles were suggested for the design of United States international health programs: reaching the majority of the population with special attention to those of low incomes in rural areas or urban slums; assisting developing countries to become more self-sufficient; collaborating with host country organizations; making realistic commitments for a sustained period; and coordinating activities with international agencies such as WHO, the United Nations Children's Fund, the World Bank, and with agencies of other donor countries.

The Committee concluded, after examining "the statutory policy and the organizational framework," that four major problems exist:

> (1) inadequate access by the U.S. government to the major U.S. sources of health science expertise; (2) too little support for research and development on the major health problems of the developing countries; (3) inadequate arrangements for U.S. backstopping of multilateral health programs; and (4) inadequate organizational arrangements for policy development, planning, and coordination of U.S. international health activities.

Three general recommendations were:

> 1. The Congress should authorize DHEW to undertake broad R & D and related activities in international health.
>
> 2. The Congress should provide the U.S. foreign aid program with authority to enter into long-term, flexible relationships with U.S. academic institutions.
>
> 3. The Executive Branch should establish an organizational mechanism to be responsible for international health policy development, program planning, and coordination.

Major health problems were characterized as follows: communicable diseases, nutrition, population, mental health, oral diseases and abnormalities. Table 31 summarizes the specific recommendations for each of these disease areas. Table 32 summarizes socioeconomic factors, and Table 33, health care capacity.

Equally important to the content of the study is what it did not do. According to Dr. Bryant:

> (1) we did not attempt to formulate a U.S. international health program, or specify an appropriate level of effort; (2) we did not attempt to assess U.S. resources—particularly health science and related professionals—that will be available to staff U.S. international health programs; and (3) we did not attempt to recommend detailed organizational arrangements or legislative specifications. We considered all three to be well beyond our terms of reference.

Senator Edward Kennedy

Senator Edward Kennedy has been very articulate in attacking "the silent crisis" or the lack of health and care for one-fourth of the people on earth—one billion. He attributes this crisis to two causes: facts are not well known, and the world's biomedical research priorities are set by industrial nations. The United States, in Senator Kennedy's belief, should be performing more research in areas of special concern to the developing world.

Senator Edward Kennedy had served as a member of the United States Delegation to the World Health Assembly in 1967 along with Congressman Melvin Laird. In a 1977 speech before the Medical Society of the World Health Organization (*55*) Senator Kennedy singled out two WHO programs for commendation: primary health care and research on tropical diseases. He presented an agenda which prescribed actions for the United States to

Table 31.—Institute of Medicine Study—Principal Recommendations on Major Health Problems

Problem		Recommendations
General	Aspects	
Communicable diseases	Bacterial, viral, chlamydial	Expand research in developing countries through U.S./foreign institutions cooperative arrangements—basic research, drug development, clinical investigations, epidemiology. Support research training of U.S. and developing country investigators and students. Enlarge support of communicable disease control in other countries. High priority cooperation with and support of WHO disease control programs.
Malnutrition and undernutrition.	Maternal and child malnutrition; malnutrition and disease; national policy.	Strengthen U.S. programs. Emphasize food supplementation, fortification and distribution. Encourage breast feeding. Expand maternal education. Introduce oral hydration. Assist in iodizing common staple foods. Support research.
Population	Fertility, family planning; contraception.	Support research to increase effectiveness of family planning programs. Support fertility control programs. Support research on reproductive biology and contraceptive technology. Support to be provided through or in cooperation with multilateral agencies.
Mental health	Affective disorders; mental consequences of systemic illness; schizophrenic diseases.	Support field programs and research. Emphasize simplified diagnostic and treatment techniques and use of non-physician manpower. Research on mental disorders in a variety of cultures and nations at various states of development.
Oral diseases and abnormalities.	Dental caries; periodontal; malformations; oral cancer.	Support field programs and research. Emphasis on prevention, planning and oral health delivery systems. Research on etiology and epidemiology of oral diseases.

Based on: National Academy of Sciences, Institute of Medicine, *Report of a Study—Strengthening U.S. Programs to Improve Health in Developing Countries* (Washington, D.C.: National Academy of Sciences, April 1978).

Table 32.—Institute of Medicine Study— Health and Ecologic, Socioeconomic and Cultural Factors

Factor	Recommendations
Social	Support more social science research as part of U.S. supported international health and biomedical research programs. Link U.S. social science research groups with field programs in developing countries. Comparative studies of population. Research on community participation, changing roles of women, health education, and housing.
Development	Health impact analyses part of major U.S.-sponsored development projects.
Community	Expand community-participation and self help. Support research on ways to elicit local participation. Support experiments for incorporating traditional practitioner (and local medical systems) into existing and planned health programs.
Natural Disasters	Support research and programs to improve preparation for coping with natural disasters.

Based on: National Academy of Sciences, Institute of Medicine, *Report of a Study—Strengthening U.S. Programs to Improve Health in Developing Countries* (Washington, D.C.: National Academy of Sciences, April 1978).

Table 33.—Institute of Medicine Study— Health Care Capacity Recommendations

Target Populations:

- U.S. priority to health problems of low-income rural and urban populations.

Support:

- Health planning, health systems management and administration in developing countries (including research and training).
- Priority to training, placement, supervision and evaluation of auxiliary health manpower, including community health workers.
- Development of primary health care system.
- Maternal—child health programs.
- Increased R & D on development of water and sanitation systems for low-income rural and urban areas.

Assist:

- (With and through WHO) in designing pharmaceutical quality standards and administrative and legal mechanisms.

Based on: National Academy of Sciences, Institute of Medicine, *Report of a Study—Strengthening U.S. Programs to Improve Health in Developing Countries* (Washington, D.C.: National Academy of Sciences, April 1978).

Advisors to the United States Delegation to the World Health Assembly in 1967 included Congressman Melvin Laird left and Senator Edward Kennedy. (Courtesy of the World Health Organization)

"shoulder a greater share of the responsibility" to support WHO efforts.

In summary, his points were:

1. Increase basic research effort into special health care problems of developing nations.
2. Support the establishment of more extensive research efforts in the developing nations. A greater share of American wealth for foreign aid should have in turn a greater allocation for health research.
3. Support the development of training programs for health personnel and scientists based to the fullest extent in developing nations.
4. Adapt our available knowledge and technology to the circumstances of developing nations.
5. Draw upon resources of the private sector, with special reference to the United States pharmaceutical industry.
6. Expand the Peace Corps health care component.

7. Suggest that WHO form an International Health Service Corps.

On June 26, 1978 Senator Kennedy introduced an Amendment to the Foreign Assistance Act (Amendment No. 2451) whose purpose was "to strengthen the international health assistance provisions of our foreign assistance program by creating a new authorization for health and disease prevention—separate from that for population assistance." Senator Kennedy took this action because he believed health assistance has been "a stepchild of the population program" within AID. The concepts underlying the Amendment are that: health assistance should be an integral part of economic development programs; the real needs of poor people in the least developed countries should be reached; true cooperation is necessary for long-term solution of health problems.

The Amendment authorized the President to furnish assistance for disease prevention and control, improved sanitation in water facilities, basic health education, and the extension of primary health care facilities. It also authorized $144 million, with Senator Kennedy's intent to request increased funding.

Under this Amendment, health research in developing countries by developing country personnel would be supported by AID. Linkages would be developed with biomedical research facilities and highly-trained United States personnel in private, public, and governmental research laboratories. The determination of research priorities would take into account special needs of the poor people of developing countries. Field testing would be performed to adapt basic research to local conditions. Information transmission would include research results for application in local health units, and technological information for the general population.

Senator Kennedy urged AID to work with HEW's Center for Disease Control (CDC) and the National Institute of Allergy and Infectious Diseases (NIAID) by using their expertise in the field. Further strengthening of the capabilities of both CDC and NIAID to contribute internationally is needed, according to Senator Kennedy. NIH does "some important research in certain areas of disease and other types of research that may be of great help and assistance to the developing countries of the world. We, in terms of our own health needs, may have gone beyond that particular research, and yet we feel the type of expertise we have developed ought to be available to Third-World countries." (*56*)

Senator Javits' Proposed International Health Acts, 1978, 1979

On May 18, 1978, Senator Javits introduced S.3103, "A Bill to Amend the Public Health Service Act to provide for the advancement of international cooperation and assistance in health and for other purposes." His cosponsors were Senators Richard S. Schweiker and Muriel Humphrey, and the Bill was referred to the Committee on Human Resources. (*57*)

The concerns which prompted Senator Javits to introduce this legislation were, in his words:

> 1. . . . disorganization of international health activities within the Federal Government.
>
> 2. . . . need to strengthen international health program activities within the Federal Government, particularly HEW.
>
> 3. . . . we have no adequate mechanism in the current structure for dealing adequately with private voluntary organizations, either in this country or abroad.

Senator Javits elaborated further:

> Let me assure you that I do not believe the three areas of concern which I have listed represent all that is wrong with international health within Government or within HEW. Rather, they are concerns which I feel can be addressed by the Senate's Human Resources Committee in the relatively near future. (*58*)

Senator Javits' bill addressed organizational and administrative matters, and the allocation of functions within these recommended changes. This bill was not acted upon before the Congress adjourned.

On June 27, 1979 Senator Jacob Javits introduced new legislation, the International Health Act of 1979 (S. 1424):

> When economic growth is joined with the humanitarian objective of improving the health and the enjoyment of life of tens of millions in developing countries, it is almost inconceivable that we have not made this effort the centerpiece of our foreign aid to developing countries . . .
>
> On a cost-benefit basis, U.S. assistance to improve the health status of developing nations is the most economical, as well as the most useful and important bilateral aid we can give.

This 1979 Act was not identical to that of 1978, although elements common to both were emphasis on health programs for developing countries; coordinating mechanisms both intergovernmental and within HEW; a nonprofit, nongovernmental organization to be named the Hubert H. Humphrey Fund for International Health and an international health service. The budget for imple-

Table 34.—Comparison of Proposed International Health Acts of 1978 (S.3103) and 1979 (S.1424)—Major Provisions

Problem	Solution	
	1978	1979
Lack of Federal coordination.	Presidentially-appointed intra-governmental coordinating committee.	Presidentially-appointed International Health Subcommittee (IHS) of the Development Coordination Committee (DCC).
Lack of international health emphasis.	Statutory basis for HEW Office of International Health headed up by Deputy Assistant Secretary for review of all budgets and programs for international health.	Same.
	Move Fogarty International Center from National Institutes of Health to Office of International Health and broaden service mandate.	Omitted.
No mechanism to monitor international health activities.	GAO system for tracking and assessing all Federal international health expenditures.	DCC/IHS responsibility.
Need to strengthen U.S. international health activities.	Organization of cadre of manpower trained in international health and available for service when needed.	International Health Programs for world, especially developing countries, PHS International Health Fellowship, International Health Service, International Health Centers and Programs in U.S.
No adequate mechanism to relate government and private voluntary organizations, domestically and abroad.	Establish Hubert H. Humphrey International Health Development Center.	Establish Hubert H. Humphrey Fund for International Health—a nonprofit corporation.

mentation of this Act was less than the proposed 1978 Act. Instead of $443 million over a five-year period, funding would be $132.5 million over a four-year period (FY 1981–84) with annual appropriations of $27.5 million, $30.5 million, $34.5 million and $40 million. The proposed 1979 Act would provide statutory authority for the Department of Health, Education, and Welfare to engage in research and manpower development for the promotion of international health. A comparison of the provisions of the proposed 1978 and 1979 Acts is given in Tables 34 through 40.

Senator Javits stated "I believe that we can make a tangible commitment to improving world health by building on the inter-

Table 35.—Comparison of Proposed International Health Acts of 1978 (S.1303) and 1979 (S.1424)—Coordination

1978—Intragovernmental Coordinating Committee	1979—International Health Subcommittee of Development Coordination Committee
Composition:	
Secretary of:	Secretary of:
State	State.
HEW	HEW.
Treasury	Treasury.
Commerce	Commerce.
Defense	Defense.
Agriculture	Agriculture.
Administrator of AID	Director of:
Director, ACTION	Peace Corps.
	OMB.
	International Development Cooperation Agency.
Director, Proposed Humphrey International Development Center.	Individual Members (4).
Chaired by designee of President	Chaired by designee of President.
Functions:	
Identify and coordinate all Federal international health activities.	Develop comprehensive Federal International Health Plan for management of all Federal international health activities for submission to President and Congress.
Annual Report to the President	Annual Report to President and Congress.
	Establish centralized information system on all international health activities.

Table 36.—Comparison of Proposed International Health Acts of 1978 (S.3103) and 1979 (S.1424)—Strengthening United States International Health Activities

1978 Fogarty International Center for Health Training and Research in the Office of International Health						1979 Public Health Service				
Functions	Funding ($ Million)					Functions	Funding ($ Million)			
	FY 80	FY 81	FY 82	FY 83	FY 84		FY 81	FY 82	FY 83	FY 84
Develop and coordinate manpower training and research programs in international health:										
Administration of international exchange programs.										
Center to promote international studies.										
Opportunities and applications of science to health problems in other countries.	9.0	9.5	10.0	10.5	11.0					
Advanced studies program										
Administer special foreign currency programs.										
Develop and operate international health manpower development and institutional support programs:						International Health Fellowship[1] Health Studies.	3.5	4.0	4.5	5.0
Undergraduate and graduate student career awards.	3.0	3.5	4.0	4.5	5.0	International health service.	6.0	8.0	11.0	15.0
International health service	5.0	6.0	8.0	11.0	15.0	International health centers and International health programs in U.S. academic institutions.	6.0	6.5	7.0	8.0
Core support for international health centers and international health programs in academic institutions.	6.0	7.5	9.0	10.5	12.0					
Total	23.0	26.5	31.0	36.5	43.0		15.5	18.5	22.5	28.0

[1] No mention of Fogarty International Center in S. 1424.

Table 37.—Comparison of Proposed International Health Acts of 1978 (S.3103) and 1979 (S.1424)—Office of International Health, HEW

1978	Funding ($ Million)					1979	
	FY 80	FY 81	FY 82	FY 83	FY 84		Funding
Functions:							
Budget and program review, recommendation. Policy Planning and monitoring HEW international health activities. Relationships with foreign health agencies.							
Assess and recommend appropriate technology. Establish and maintain information systems for monitoring all HEW international health activities. Develop international health activities Identify and coordinate all training, service and research in international health.	4.0	4.5	5.0	5.5	6.0	Essentially the same but with specific reference to its HEW Coordinating role re the International Health Subcommittee of the Development Coordination Committee and its provision of staff support to the Development Coordination Committee.	Not specified.
Personnel:							
Deputy Assistant Secretary for International Health.						Same	
Use of other agency personnel and consultants.							

Table 38.—Comparison of Proposed International Health Acts of 1978 (S.3103) and 1979 (S.1424)—Initiative in Tropical Medicine

	1978					1979
	Funding ($ Million)					
	FY 80	FY 81	FY 82	FY 83	FY 84	
Center for Disease Control	6.0	8.0	10.0	12.0	14.0	Omitted.
National Institute of Allergy and Infectious Diseases.	5.0	6.0	7.0	8.0	9.0	
Total	11.0	14.0	17.0	20.0	23.0	

Table 39.—Comparison of Proposed International Health Acts of 1978 (S.3103) and 1979 (S.1424)—Humphrey Center/Fund—Functions

1978	1979
Nature:	
Humphrey International Health Development Center.	Hubert H. Humphrey Fund (Nonprofit Corporation).
Goal:	
Implement improved health-care in foreign nations.	Improve health status of people in developing countries with policy guidance from IHS/DCC.
Research and demonstration projects. Studies Applications of technical knowledge.	Provide forum for structured international exchange between government and private voluntary organizations on health issues, problems, finances.
Programs Operation:	
Pilot projects	Support development of new international health activities with public and private participation.
Establish, maintain and operate information and data centers for health research.	Develop policy recommendations.
Initiate and execute health services research and technical development.	Technical support to AID-qualified private voluntary organizations.
Support health services research by governments, international, public or private organizations and agencies or individuals.	Support systems of technical assistance and training for technology application.

Table 40.—Comparison of Proposed International Health Acts of 1978 (S.3103) and 1979 (S.1424)—Humphrey Center/Fund—Organization

1978	1979
Governance:	
Humphrey International Health Development Center.	Hubert H. Humphrey Fund (Nonprofit Corporation).
Director:	
A Presidential Appointee.	A Presidential Appointee.
Board:	
13 Presidential Appointees (3 Federal).	15 Presidential Appointees (7 government, 8 nongovernment).
Funding:	
International Health Development Fund in the U.S. Treasury.	
No requirement of annual authorization.	
Appropriations ($ Million):	
$25 for FY 1980	
$30 for FY 1981	$10 for FY 1981.
$35 for FY 1982	$10 for FY 1982.
$40 for FY 1983	$10 for FY 1983.
$45 for FY 1984	$10 for FY 1984.

national prestige of agencies like the U.S. Center for Disease Control and the National Institutes of Health." Senator Javits used the 1976 data presented in the Bourne Report—"No less than 28 different Departments and Agencies of the U.S. Government spent $528 million on international health, even excluding the substantial expenditures of the Defense Department in overseas hospital installations and research in tropical disease in developing countries, as documented by a recent White House report." He also referred to twenty-two Federal Agencies in 1977 spending $1.24 billion on international health activities without the benefit of overall policy guidelines.

S. 1424 was referred to the Senate Committee on Labor and Human Resources and then to its Subcommittee on Health and Scientific Research. The Subcommittee requested executive comment from the Government Accounting Office (GAO) and it is anticipated that hearings will be held by the Committee.

Chapter IV

INTERNATIONAL HEALTH AND FOREIGN POLICY: CONFRONTATION OR COORDINATION?

> *What failures there may be stem rather from the usual American reluctance to look into the theoretical and logical structure of things and to rely . . . on an empirical muddling through.*
>
> Robert S. Morison. (*1*)

The Problem

In the area of international health and foreign policy, there are three underlying difficulties: (1) the oftentimes competitive rather than complementary roles of the Executive and Legislative branches in foreign affairs, (2) the blurring of authority, responsibility, and accountability within the Executive branch, and (3) the difference between science and diplomacy in concept, methodology, and execution. Superimposed on all of these are fiscal considerations—either expressed through Congressional appropriation channels and/or Office of Management and Budget controls.

Historically the major foreign policy concerns of the Department of State have been related to defense, mutual security, technical assistance, and economic development. When science was recognized as having international significance and impact, the Department of State's initial role was policy review. State did not become involved with the substantive aspects of international scientific programs which it did not have the competence to assess, nor did it initiate activities. Thus, in the conduct of international scientific activities with advanced countries and allies, the Department of

State role has been essentially to be informed and to review programs for foreign policy implications.

However, as our diplomatic activities became more directed toward the Communist States of Eastern Europe and with the developing world, the ease with which scientists, physicians, and health professionals could relate to their counterparts came to be viewed as an opportunity for the diplomats to increase a variety of contacts and relationships. How can one assess the United States providing $1.6 million (20 million Yugoslav dinars from the Special Foreign Currency Program) for a hospital in Yugoslavia because State wished to express United States sympathy and support for a continued independent Yugoslavia? It is in this area that the issues between science and diplomacy have become more sharply defined, but the resolution and implementation blurred. I have not been able to document a direct causal relationship between scientific accomplishment and a political or military accord between nations. Humanitarian achievements and scientific cooperation do not automatically offset political ideology.

When nonscientists propose using science and research within the political setting, there is an aura of immediate and great accomplishment. This encourages expectations which are often unrealistic; and the scientific community does not always rectify this. In 1961, the United States announced the launching of a five-year endeavor to eliminate smallpox. Eighteen years later, on October 26, 1979, the World Health Organization declared the global eradication of smallpox.

Eighteen years of medical exchanges (1954-72) with the Soviets produced a formal agreement in 1972 which has been renewed (1977) for another five years. There have been modest results over this 25-year period in some but not all fields of medicine and health. Part of this can be attributed to the nature of research and part is due to a difference in level of competence of the two countries in specialized fields.

An international health activity contains both scientific and foreign policy elements. These may be in or out of balance; they may reinforce each other or be counterproductive. Immediate concerns and crises press for foreign policy decisions which may not reflect long-term objectives. International scientific involvements have long-term goals and require stability. Thus, foreign policy and science may be incongruous and out of phase. Decisions may be made which are time and people dependent and thus they appear to be solely *ad hoc*. Political and security matters take precedence.

Scientific (biomedical or health) affairs are viewed as apolitical. Accordingly, "science" is often added to the deliberations, conclusions, or communiqués of meetings of Heads of State in order to introduce an area in which progress can be made pending the resolution of more intricate difficulties. Thus, science, which has called for a place in foreign affairs, may now be used as a "tool" rather than an "instrument" of foreign policy. This may lead to a cumbersome mechanism for cooperation; a mismatch between the countries involved; the assignment of an agency to develop and implement new programs without funds and staff. The result is an honest effort to respond with activities which are worthy of both foreign policy and scientific objectives, but the programs often do not meet the expectations of either the diplomats or the scientists of each country.

Confrontation: The International Health Research Act of 1960

The International Health Research Act of 1960 (PL 86–610) has been in existence for 20 years and the Presidential authority to conduct research for international health purposes has been delegated to the Secretary of HEW only three times (page 152). Underlying this are the basic ingredients of agency conflict and continued irresolution.

The detailed accounting which follows is derived from a memorandum from David Bell, Director, Bureau of the Budget (BOB) to Mr. Feldman of the White House staff on March 20, 1962.

Immediately following the passage of the International Health Research Act, Secretary Flemming of Health, Education, and Welfare on October 10, 1960 submitted a draft Executive Order to Director of the Bureau of the Budget, Maurice Stans, which would provide for delegation of the Presidential authority to the Secretary. These authorities would enable the Secretary to undertake activities in health research, research planning, and research training:

> . . . relating to the causes, diagnosis, treatment, control and prevention of diseases and impairments of mankind (including nutritional and other health deficiencies) or to the rehabilitation of the handicapped . . .

to advance international health sciences. The Secretary could use fellowship programs; grants; make grants or loans of equipment, medical, biological, physical, or chemical substances or other materials; furnish technical assistance and advice and pay for consultants; fund the interchange of scientists and experts; and support international communication in the sciences. These activities did not include support of public health or medical care but did include research and research training in the science of public health and public health administration. HEW would use special foreign currencies under Title I of the Agricultural Trade Development and Assistance Act of 1954 and the Mutual Security Act of 1954. Assurance was given that activities would be executed consistent with United States foreign policy. This draft Executive Order was submitted to the Departments of State, Agriculture, and Treasury. The latter two had no major problems with its provisions.

Two years followed with an extensive exchange of correspondence among the Department of State, Bureau of the Budget, and the Department of Health, Education, and Welfare. State's position was that it must maintain the integrity of foreign assistance programs and State's prerogatives in the international area. It recommended on January 18, 1961 that the HEW draft Executive Order be amended to exclude delegation to HEW of "international health research designed principally to further the purposes set forth in the Mutual Security Act of 1954, as amended." State further suggested that the performance of functions delegated to HEW "shall be subject to policies and procedures approved by the Secretary of State, including those of the International Cooperation Administration, and of other Federal agencies." BOB sent copies of the State, Agriculture, and Treasury responses to HEW on February 23, 1961.

On March 7, 1961, the new Secretary of HEW, Abraham Ribicoff, endorsed HEW's October 1960 draft and specifically rejected the major amendments proposed in the State letter of January 18, 1961. Secretary Ribicoff described HEW programs authorized by the Draft Executive Order as "scientist to scientist" which would not duplicate or overlap mutual security program activities. The Secretary stated further that, "since all international programs conducted by this Department are coordinated with the Department of State, ample opportunity exists for insuring consistency with Mutual Security Program activities or objectives."

State sent a stronger letter to BOB on March 21, 1961, indicating that the proposed delegation to the Secretary, HEW, would:

> establish a basis for duplication and fragmentation of activities now under the responsibility of the International Cooperation Administration

and that it:

> appears to raise issues relating to the role of the Secretary of State in matters of foreign affairs and the effectiveness of country planning of United States foreign activities to achieve our policy objectives.

State further proposed that no action be taken on the Executive Order until Public Law 86–610 could be amended to delegate Presidential authority not to the Secretary of HEW but to the Secretary of State, with appropriate arrangements for HEW participation.

These issues were further discussed in an April 19 meeting between the BOB and HEW. On May 2, 1961, the Deputy Director of the Bureau of the Budget wrote to Secretary Ribicoff that a decision on the proposed Executive Order could be made only in the context of the President's pending determination on the foreign aid program and its organization, which were being examined by the President's Task Force on Foreign Economic Assistance. In the meantime, BOB suggested that proposals for activities to be initiated under the President's authority in the Act could be submitted to the Bureau of the Budget for consideration and action by the President.

The President's Task Force subsequently recommended that all foreign assistance activities be centralized in a new Agency for International Development within the Department of State. It was decided to withhold action on the proposed Executive Order until the Act could be amended to remove the limitation in section 5 (f) that the President's authority be delegated only to the Secretary of HEW. Such an amendment was incorporated into the 1961 Administration Foreign Assistance Bill. The Senate included the amendment but it was deleted from the House Bill in Committee, and it was not included in the Conference Bill.

The rationale in support of such an amendment instead of the HEW proposed Executive Order was:

1. Delegation to HEW was inconsistent with actions of the Administration and Congress in the Foreign Assistance Act of 1961 intended to unify the administration of foreign assistance activities.
2. Fragmentation of government programs with a foreign policy purpose would diminish the role of the Secretary of State.
3. The procedure would create additional obstacles to effective country programming of foreign affairs operations.

4. This would constitute a strong precedent in other functional areas, such as education, labor, and transportation where there were pressures for a functional approach to foreign assistance.

Bureau of the Budget Director Bell indicated that an amendment had been proposed in the Administration's Foreign Assistance Bill for 1962, already submitted to Congress, and that it was not desirable to proceed with an Executive Order while the amendment was pending. He indicated that if the amendment was not accepted, the matter could be reconsidered. PL 86–610 remains unchanged. Delegation of Presidential authority to the Secretary of HEW was made three times for the following: a National Institutes of Health grant for research planning to the Pan American Health Organization in 1961; National Institutes of Health funding to execute the Joint United States-Japan Cooperative Medical Science Program in 1965; and the Food and Drug Administration funding of a Worldwide Drug Reaction Monitoring System in 1967.

This foregoing detailed chronology of a two-year period illustrates issues which continue to exist today: conflict of functional responsibilities (State, ICA—now AID, and HEW); relationship of international health to mutual security programs; and Administration attitude toward funding.

Coordination: The Committee Mechanism

Committee on International Social Policy (1946-49)

Every so often, the awareness that there may be benefits in "coordinating" the activities of several government departments or agencies reaches a level that precipitates action. The initiative does not always originate with the substantive agencies. The Committee on International Social Policy is an example.

In 1945, Mr. Walter Laves of the Bureau of the Budget sought the establishment of an interdepartmental committee, plus a number of subcommittees, to formulate and coordinate policy in the foreign social field. The intent was to bring together the Departments of State and Labor and the Federal Security Agency on matters of social policy and to prevent their conducting separate "lobbying" in the United Nations. An interdepartmental committee was suggested because the mechanism had apparently worked well in the field of foreign economics.

In the course of developing the committee there was considerable debate, and a struggle between State and Labor. First was the disagreement on who should chair the committee, each Department reserving that function to itself. This was resolved by State designating the chairman, but for all practical purposes the Deputy Chairman, who would be from Labor, would be the executive head of the committee.

The second source of contention concerned health programs. State proposed a separate health committee; Labor proposed combining health with the committee on social policy. State's position was that for a long time health had been recognized internationally as a separate and distinct field. This was corroborated by the development of a specialized UN agency in this field (the future WHO); furthermore, health, in State's view, had many technical ramifications. The matter of committee representation was a determining factor in State's rationale. If health were combined with social problems in one committee, the Federal Security Agency representation would not accord a position to the PHS Surgeon General, Dr. Parran. State felt that his personal participation was important to the success of the deliberations. The resolution of the dispute was to have one committee and a number of subcommittees, one of which would be health.

The Committee on International Social Policy (ISP) was actually established by President Truman in a letter of November 25, 1946 to the Secretary of State. President Truman's letter read in part:

> The principal responsibility in the Executive Branch for the determination of policy in relation to international affairs rests with the Department of State. Foreign policy, however, as a part of total public policy of the United States Government is of concern to other departments as they formulate policies in their respective fields. Moreover, many departmental policies, although conceived frequently in terms of domestic needs, affect our foreign relations. Consequently, foreign policy should be developed with the assistance of the other departments directly concerned.

The President referred to other major interdepartmental committees such as the Executive Committee on Economic Foreign Policy; the State, War, Navy Coordinating Committee; the National Advisory Council on International Monetary and Financial Problems; as well as special committees such as the Air Coordinating Committee; Telecommunications Coordinating Committee; and Food and Agriculture Committee. President Truman's letter continued that a principal area of foreign policy "not yet adequately organized on an interdepartmental basis is that relating to social affairs, including social welfare, health, labor, education, science, cultural relations and information."

The Departments of State, Interior, Agriculture, Commerce, and Labor and the Federal Security Agency were all asked to designate a member for the Committee. The Bureau of the Budget also was to have a member, but in a nonvoting status.

The Committee was given the responsibility "to examine problems in developments in the social field (labor, social welfare, relief, health, human rights and information and related problems) affecting the foreign policy of the United States and to make recommendations to the Secretary of State and the President, and for the guidance of the agencies involved."

Representation was formal and at the Assistant Secretary level. The Committee met 14 times in 1947 and 14 times in the first half of 1948, with an average of two hours for each meeting. Coordination between this Committee and the Committee on Economic and Foreign Policy was achieved by a common secretariat, the Office of the Assistant Secretary for Economic Affairs in the Department of State.

The International Social Policy Committee had five subcommittees: health, human rights and the status of women, labor, non-self-governing territories, and social welfare. The Federal Security Agency chaired the one on social welfare. The Subcommittee on Health was chaired by State initially, with representation from the Federal Security Agency, Agriculture, Army, and Navy. However, this chairmanship was turned over to the Public Health Service and to Dr. Parran.

Of 205 recommendations brought by the subcommittees to the ISP, only eleven originated in the Health Subcommittee. These were almost exclusively related to the World Health Organization. At an August 11, 1947 meeting, the ISP Committee approved a United States position paper for the fourth session of the Interim Commission on the World Health Organization. Subsequently ISP took final action on other Health Subcommittee reports: penicillin plants; availability of technical knowledge or production processes of antibiotics—penicillin, streptomycin, chloromycetin, aureomycin; the scale of contributions to WHO; the WHO budget for 1948; the WHO budget for 1949; relations with nongovernmental organizations; the first World Health Assembly site; the establishment of WHO regional organizations; definition of geographic areas; and the Pan American Sanitary Organization.

The composition and function of the ISP was examined by the Hoover Commission Task Force No. 3 (Nonmilitary Interdepartmental Relationships). As of June 1949, the Task Force indicated that it found the Subcommittee on Health to be relatively inactive because liaison between State and the Public Health Service was highly developed through the use of physicians who served in dual capacities in both agencies. The Task Force recommended that the ISP Committee be terminated and the four active subcommittees be continued as independent committees. Health, as an inactive subcommittee, would be terminated. However, the Task Force recommended that the existing PHS/State liaison arrangements in health be continued and relied upon for consultation. Further, the Task Force apparently found this to be so effective that it suggested a similar pattern would be worth exploring for the field of education.

On October 11, 1949, Eleanor E. Dennison, the Executive Secretary of the ISP, circulated a note stating that the Committee on International Social Policy would not meet until further notice. In November 1949 a draft paper was prepared for the proposed dissolution of the ISP. In December, Miss Dennison distributed another memo indicating that in the light of issues raised by the member agencies and the Hoover Commission Report, State wished additional time to explore more carefully the problem of interdepartmental consultation and the range of possibilities for achieving desired objectives. In any event, the formal interdepartmental group on health was dissolved.

Interdepartmental Committee on International Health Policy (1960)

Origin

Secretary Flemming of HEW requested that a committee be established on international health policy. In a meeting on February 26, 1959, agreement was reached by a group which included Douglas Dillon, Under Secretary of the Department of State, Secretary Flemming of HEW, Philip S. Hughes, Assistant Director for Legislative Reference, the Bureau of the Budget, and James Grant, Deputy Director of the International Cooperation Administration.

Apparently there was no committee in existence with the same responsibility as the proposed committee. The Interdepartmental Committee on International Social Welfare Policy was sometimes concerned with the health aspects of the United Nations Children's Fund program, but health remained peripheral to the main thrust of that Committee. The Interdepartmental Committee on Nutrition for National Defense emphasized nutrition, including health aspects, but did not cover international health matters in general.

In September 1959, an internal State memorandum from the Bureau of International Organizations requested formal concurrence from the Bureau of Administration for the establishment of a committee. The memorandum was very complete in describing this proposed committee: name, purpose, nature of committee business, effect and status of committee actions, organization, establishment, level of membership, relationship to other committees, operating procedures, source of committee business, documentation, number and frequency of meetings, duration, and justification. At the outset, it was thought that the new Committee would meet perhaps from six to twelve times a year, and a subcommittee would function more frequently.

In the memorandum, the need for the Committee was described:

> The international health activities of the U.S. Government now involve the expenditure of about $100 million a year and the participation and interest of several agencies. The Committee will help to assure that the overall U. S. international health program is planned and conducted as a consistent, comprehensive whole, with maintenance of close cooperation between the agencies concerned, full exchange of information, and joint development of program policies. . . . The Committee will meet as necessary to advise the Secretary of State, and other agencies concerned, on the formulation of general policy, new types of programs, and correlation of U.S. programs in the field of international health.

Such a functioning committee, the memorandum continued:

> should help to correct a situation where absence of adequate inter-agency consideration of issues has led to confusion. Consultation on an *ad hoc* basis, including the use of working groups (not related to any larger committee structure) has been tried and found ineffective. The Committee should help to ensure that U.S. international health activities are viewed, planned and conducted in a consistent and complementary way.

The Committee could request that studies be prepared to develop policy recommendations. Action on the Committee's advice and recommendations would help to formulate "United States policy in the international health field" and "indirectly affect legislation, regulations or procedures designed to give effect to policy." The Committee would be an advisory, not a decision-making body.

The Chairman would be HEW Secretary Flemming, and the Executive Secretary would be Laurence Wyatt of the Office of International, Economic and Social Affairs, Bureau of International Organization Affairs. Members would be at the Cabinet and Assistant Secretary level. Individuals who had agreed to serve on this Committee were Francis Wilcox, Assistant Secretary of State for International Organization Affairs; George Allen, Director of the United States Information Agency; Leonard J. Saccio, Acting Director of the International Cooperation Administration; and Dr. Leroy T. Burney, Surgeon General of the Public Health Service.

Beginning on February 1, 1959, pending the formal establishment of the Committee, the group held a number of *ad hoc* meetings to consider urgent international health matters, such as the content and handling of discussions on United States–Soviet relations in health during the visit of Mr. Krushchev. The group agreed that the best mechanism for establishing the Committee would be letters from the President to the Secretaries of State and HEW. The two Departments would then formally establish the Interdepartmental Committee on International Health Policy.

On October 16, 1959, John A. Calhoun, Director of the Executive Secretariat in State, sent a memorandum to Brigadier General A. J. Goodpastor of the White House, on "Suggested Letters on Interdepartmental Committee on International Health Policy." He put forth the recommendation of the group that the President request the establishment of this Committee in letters to the Secretaries of HEW and State. Mr. Calhoun suggested that this would emphasize the importance which the United States attached to international health and to establishing effective international health policies and programs. It would also "logically follow, and reinforce, the several statements made by the President over the years on the value of international cooperation in health, as a work of peace."

Almost two months later, on December 10, 1959, Robert E. Merriam, Deputy Assistant to the President, replied to Mr. Calhoun's memorandum. His response was that it would be appropriate for the Committee to be formalized either by a letter from the Secretary of State or by an interagency agreement. His reasons were the nature of the Interdepartmental Committee on International Health Policy and the fact that it appeared to be already more or less organized. Mr. Merriam suggested that the Committee send a progress report early in the legislative session to the President, and the President could then comment on the importance of these activities.

On January 16, 1960, one year from the original agreement among the Departments to establish such a committee, Acting Secretary of State, Livingston T. Merchant, sent a letter to HEW Secretary Flemming formally recognizing the Interdepartmental Committee on International Health Policy (IHP). During the spring of 1960, there was some discussion that the Interdepartmental Committee on International Health Policy be merged with the Interdepartmental Committee on International Social Welfare Policy. State took the position that it was inadvisable to merge these two committees. The Health Committee had been recently established and was still developing its methods and procedures. State feared that any consolidation of the two Committees would perhaps reduce the effectiveness of the Committee on International Health Policy. It is interesting that during these discussions, the Interdepartmental Committee on International Social Welfare Policy was without a chairman; and State suggested to HEW that the chairmanship might be assumed by HEW.

On December 13, 1960, 11 months after its formal beginning, Secretary Flemming and Surgeon General Burney of HEW transmitted a signed copy of the Report of the Interdepartmental Committee on International Health Policy to State, ICA, and USIA for signature. After some delay, the Report was signed by all members of the Committee—Arthur S. Flemming, Secretary of HEW; James W. Riddleberger, Director, ICA; Christian Herter, Secretary of State; Abbott Washburn, Acting Director, USIA; and Leroy E. Burney, Surgeon General, PHS—and transmitted to President Eisenhower on January 14, 1961, six days before the inauguration of President Kennedy.

International Health Within the Context of Foreign Policy

The Committee cited the Mutual Security Act of 1959:

> . . . peace in the world increasingly depends on wider recognition, both in principle and practice, of the dignity and interdependence of men; and . . . the survival of free institutions in the United States can best be assured in a world wide atmosphere of expanded freedom. . . . The Congress recognizes the basic identity of interest which exists between the people of the United States and the peoples of other lands who are striving to establish and develop politically independent and economically

> viable units, and to produce more goods and services, and to improve ways of living by methods which reflect the popular will, and to realize aspirations for justice, for education, and for dignity and respect as individual human beings, and to establish responsible governments . . . . The Congress declares it to be a primary objective and need of the United States, and one consistent with its tradition and ideals, to share these strivings by providing assistance . . . (Public Law 86-108, H.R. 7500, July 24, 1959).

Therefore, the Committee used as the context for its international health policy deliberations that:

> . . . The basic foreign policy objective of the United States may be defined as promotion of the security and welfare of the United States, and the achievement of an international order which is peaceful, prosperous, and favorable to the evolution of free institutions based on the recognition and advancement of human rights.

International health could contribute to this objective by an improvement in the health and welfare of individuals and society, which in turn would assist nations to achieve a state and condition of life conducive to peace.

The Work of the Committee

International health policies on which the Committee made recommendations or gave advice were:

Objectives of United States international health policy.

United States support for the malaria eradication program.

Various aspects of expanding international health cooperation including possible relationships with the Soviet bloc.

The formulation of policies on United States participation in strengthening the World Health Organization and the Pan American Health Organization.

Whether it would be appropriate or useful to the United States to make a proposal for expanded international health cooperation at the Summit conference.

Potential health proposals in connection with the visit of Mr. Krushchev.

United States–Mexico relations in health.

Byelorussian cancer resolutions in the UN General Assembly.

Project HOPE.

International Health and Medical Research Year.

A subcommittee considered topics such as health exhibits overseas; use of live poliomyelitis vaccine abroad; proposal for a Medical Research Unit in Thailand; possibilities of assistance in schistosomiasis control; technical aspects of milk allocation to UNICEF; international health activities under PL 480 and PL 86–610 (the International Health Research Act of 1960); the health activities of regional organizations such as SEATO, CENTO, and the South Pacific Commission.

The Committee considered improving international health to be a basic foreign policy objective. The Cold War added another dimension to this because it was understood that the Sino-Soviet bloc was making a concerted effort to use health as a tool to extend its own influence and domination over other countries and peoples. This competition suggested that the United States would have to demonstrate that its values and methods in human development and betterment were preferable to those of the Communists. In the Committee's view, the critical problem was "the increasing visibility of vast disparities in the conditions of life of various peoples, and the consequent 'revolution of rising expectations' " and that these were the problems which must be solved regardless of the Cold War.

International Health Policy Objectives

The Committee identified four broad objectives of international health policy in this order: social and humanitarian, political, economic, and medical.

Social and Humanitarian Objectives

1. "Use of health programs to promote individual and social development." The ideals and the humanitarian and philosophical beliefs basic to the American democratic tradition should be reflected in United States international health activities. These values were expressed, according to the Committee, in the international health programs in which the United States participates, such as, technical assistance (multilateral and bilateral); worldwide health programs (multilateral); the advancement of medical science; and exchange of persons.

2. "Support health programs even where they contribute to population problems." The means to better health should not be denied to any peoples because of actual or presumed effects on population growth; but some suitable measures would be needed to alleviate problems associated with population expansion.

Political Objectives

1. "Use of health activities to contribute to a United States position of world leadership and partnership."

2. "Help to strengthen the United Nations and OAS [the Organization of American States] systems through their health programs" (specifically WHO and PAHO).

3. "Encourage the role of health programs in contributing to the development of politically stable conditions, especially in newly-developing countries, generally conducive to the evolution of free institutions."

Economic Objectives

1. "Support health activities which carry economic benefits for other countries, especially in underdeveloped areas." Suitable health programs would increase resources and capabilities for production, and decrease the costs of disease and health care.

2. "Support health activities which carry economic benefits for the United States." Improved health conditions could have a positive effect on American investments in less-developed areas, —markets for United States goods and international trade and travel.

3. "Undertake or assist health programs as an integral part of balanced social and economic development." The Committee flatly stated that "health programs are an essential and integral part of larger programs of balanced development, including also such areas as education, agriculture and industry. Health programs which are properly selected and conducted are interrelated with, and facilitate, these other phases of development, and take account of the reciprocal effects of health and demographic factors."

Medical Objectives, Including Self-Protection Against Diseases

1. "Continue to participate, through WHO, in the evaluation of minimum necessary quarantine measures."

2. "Continue to assist in control of disease at its source."

3. "Undertake measures of self-protection from the military standpoint."

4. "Advance international cooperation in medical science and personnel exchanges." The Committee referred to a need for expanded coordination of research, exchange of personnel and of literature, an integration of skills, and a sharing of facilities.

Urgent Recommendations

Recommendations for future policy and action were separated into urgent and long-range. There were six urgent items:

1. United States support in the malaria eradication campaign.
2. Need to determine health programs and agency roles in the Americas under the Act of Bogota.
3. Support medical education, health services, and disease control in Africa.
4. United States-supported research should be pursued as a mutually advantageous area in the promotion of United States foreign policy. ("This should not detract from the necessity of evaluating proposals on a scientific basis, but on the other hand, there is a second dimension of evaluation which would benefit the United States in its position in the world today. It also should continue to advocate a strong WHO research role with appropriate research grants from NIH.")
5. Continued attention to the nature of support for safe and adequate water supplies.
6. Health requirements should be considered in any plans for "stepped-up aid" to underdeveloped areas.

With regard to the Committee's recommendation on malaria, it essentially reaffirmed recommendations made to the Secretary of State in a memorandum of April [illegible], 1960. The Committee had reviewed the financial and policy aspects of the malaria eradication program. The Committee's malaria deliberations illustrate that various views may exist and financial considerations may intrude on what might preferably be considered as a purely humane program. All Committee members agreed that the United States should continue to strive toward malaria eradication and continue existing ICA support to complete the country programs. In addition, as long as the United States was participating in the worldwide malaria eradication program, it should continue to make contributions to the multilateral agencies engaged in malaria eradication.

The status of malaria eradication programs was as follows: 18 countries with complete malaria eradication; 43 countries assisted by WHO and/or UNICEF, and by the United States contributions to the WHO and PAHO Special Account for Malaria Eradication; 26 countries with whom ICA had bilateral agreements for malaria eradication programs; five countries which were requesting bilateral assistance from the United States; and 64 countries which had not yet initiated eradication programs. Estimated cost to complete the

26 ICA bilateral programs was $255 million, with an additional $77.3 million for the five new countries requesting assistance.

The Committee believed that the United States should not continue to provide substantially all of the foreign exchange resources, and that economically-advanced nations free of malaria should be urged to make larger contributions. The two items on which there was not complete agreement were extension of the program to new areas and the level of continued funding. Four of the five members of the Committee agreed that (1) the United States should extend bilateral support as a special program to new areas such as Pakistan and tropical Africa and (2) the total level of financing from all sources be maintained until a large number of countries move from the present attack phases of malaria into the surveillance phase and beyond.

The ICA representative pointed out that it was always understood that the United States was not undertaking complete eradication of malaria from the world. It was making large-scale efforts to launch and establish eradication programs which could then be taken over by the recipients in other countries. These two issues were presented to the Secretary of State for his further consideration. In Secretary Flemming's view, the United States support for the malaria eradication program was one of the most significant which the Interdepartmental Committee had considered.

In addition to urgent recommendations, the Committee suggested one long-range action—a reevaluation of whether and how health programs contributed to international health policy objectives. There were many changes which had occurred, such as an increase in health competence in the developing countries, the training of thousands of health personnel, new effective multilateral health organizations which had been nonexistent or of relatively minor importance when the United States began bilateral aid programs, and Russian world health activities with the accompanying political-social problems and a competition with western ideologies. In the Committee's view, the United States "could not much longer carry a disproportionately large responsibility for the well being of the world's people." This was not merely a matter of finances, but of real domestic needs in terms of health personnel, educational needs and shortages and an increasing dependence on foreign physicians.

Bilateral health programs were being steadily reduced in scope and in numbers. The only exception was the bilateral malaria eradication program which increased total United States financial support for international health activities. Thus, the Committee recommended a redefinition and refinement of the government's role in influencing future developments. In examining the character and content of international health programs that could contribute to United States objectives, a number of elements were identified. Training and education were important, both in the United States and in developing countries. United States training needed changing from emphasis on domestic health problems and sophisticated technology to training more appropriate to the health needs of the developing countries. Health training facilities in developing countries should receive United States support through training, personnel, equipment, and money; and these institutions should provide training to people from third countries. The choice of public health versus medical care was debated. The Committee concluded that primary emphasis should be on the public health approach with medical care techniques used where specifically indicated.

The Committee noted that some United States–USSR relationships were particularly active in the health field, such as an exchange of technical missions and joint meetings in the two countries on cancer, heart disease, and virology. The Committee also commented on the USSR becoming increasingly active in WHO, pressing for more Eastern European representation, and introducing highly-charged political issues into the technical forum of the World Health Assembly. Nevertheless, the Committee recommended that the United States not only continue active exchange relationships with the USSR in health but that these relationships be initiated with other Eastern European countries. At the same time, the United States should protect the Free World's interests in WHO.

The advantages and disadvantages of multilateral and bilateral mechanisms were reviewed. It was concluded that a mechanism should be selected which is the best for a particular program or geographical area. Although there was increased emphasis on providing assistance to the Americas and Africa, the health assistance programs of Asia and the Near East should be sustained. The Committee's final recommendation was that more information should be obtained through studies on the relationship of health to population and economic and social development.

Committee's Fate

Secretary Flemming had a number of ideas on providing advice to the Secretary of State, particularly in the development of international social policies and programs. This was apparently precipitated by Secretary Flemming's increased awareness of the social aspects of the economic and political growth of developing countries and a need for balanced social and economic planning. He used as an example his own Department, in which he stated that health, education and welfare factors were closely interrelated with the social and economic development of the United States.

Secretary Flemming suggested to the Department of State that an International Social Policy Group be established, including the Secretary of Health, Education, and Welfare as Chairman, the Secretary of Labor and the Under Secretary of State. The Policy Group would have an interdepartmental team of senior staff officers, who would review, screen and document the items to be considered. In addition, technical subcommittees would be established and the Federal spokesman for the specialized field concerned would chair an appropriate subcommittee, for example the Surgeon General of the United States Public Health Service, the United States Commissioner of Education, the United States Commissioner of Social Security, the Assistant Secretary of Labor for International Labor Affairs, and so forth. These chairmen of the subcommittees would participate in discussions with the Policy Group whenever the substantive technical aspects of the proposed international social policies and problems warranted it. Secretary Flemming also suggested that the Policy Group could include subsequently major Federal departments concerned with international economic problems occurring within the United Nations and related agencies. It was Secretary Flemming's belief that in this way the interrelationship of social and economic factors and development would be properly considered.

Secretary Flemming received a response to his December 1, 1960 letter on December 15, 1960 from Charles E. Bohlen, Acting Assistant Secretary for International Organization Affairs, Department of State. Mr. Bohlen mentioned the changes underway at the Assistant Secretary level in the Department of State and the few weeks remaining for the outgoing Administration. Mr. Bohlen believed that these factors prevented establishing an advisory policy group at that time, but a plan could be developed for consideration by the new Administration.

In the early months of 1961, the new Administration took steps to reduce the number of existing committees, including the Interdepartmental Committee on International Health Policy. Frederick G. Dutton, Special Assistant to the President, on March 20, 1961, sent a memorandum, "Reduction of Interdepartmental Committees" to

Secretary of State Rusk, attention L. D. Battle, Executive Secretary, Department of State. Mr. Dutton wrote that they had been advised by the Department of Health, Education, and Welfare that HEW and State were discussing the future of the Interdepartmental Committee on International Health Policy and its Working Group. He asked for the final recommendation on continuing or terminating this Committee in order to include it in a final "committee reduction report" to the President on Wednesday, March 22.

Mr. Battle's response on March 22, 1961 said that this Committee's fate was part of a broader review by State and other agencies on the future role and structure of committees concerned with various international aspects of economic and social development. Mr. Battle stated that the accomplishments of the Interdepartmental Health Policy Committee and its Working Group justified their continuation. State "has found the health committee to be of particular assistance in bringing foreign policy considerations to bear on international health activities and programs. The Committee has proven its value both as regards specific major policy matters such as the role of the United States in the World Health Organization programs and certain of its programs, especially malaria eradication, and in agreeing on and defining a general context of policy and objectives within which United States activities in international health should be carried out." State accordingly recommended that the Committee be continued as presently constituted, with the possibility that later its composition or charter might be altered after their own review was completed.

However, with the departure of Secretary Flemming, from HEW in 1961, the Interdepartmental Committee on International Health Policy ceased to function.

Development Coordination Committee (1975)

The Development Coordination Committee (DCC) was established February 28, 1975 by an Executive Order "Amending Executive Order No. 10973, Relating to Administration of Foreign Assistance and Related Functions to Provide for a Development Coordination Committee." The Committee consists of the Administrator, Agency for International Development, Chairman; the Under Secretary of State for Economic Affairs; the Under Secretary of the Treasury for Monetary Affairs; the Under Secretary of Commerce; the Under Secretary of Agriculture; the Under Secretary of Labor; the Special Representative for Trade Negotiations and Associate

best copy available

Director of the Office of Management and Budget; the Executive Director of the Council on International and Economic Policy; a representative of the Assistant to the President for National Security Affairs; the President of the Export Import Bank of the United States; and the President of the Overseas Private Investment Corporation. Other agency representatives can be invited to participate in meetings and deliberations of the Committee if the subject area is of immediate concern. "Under the foreign policy guidance of the Secretary of State, the Committee shall advise the President with respect to coordinating United States policies and programs affecting the development of the developing countries, including programs of bilateral and multilateral development assistance."

Subcommittee on International Health

After Dr. Bourne's resignation from President Carter's Administration in 1978, mechanisms for continuation of the Administration's health initiatives were reviewed. It was decided that the Development Coordinating Committee would have a Subcommittee on International Health which would be co-chaired by the Deputy Assistant Secretary of Health, HEW and the Deputy Assistant Administrator of AID for the Development Support Bureau.

The terms of reference state that the purpose of the Subcommittee is:

> to facilitate coordinated and effective planning and implementation of U. S. Government international health programs and activities.
>
> Specifically, the Subcommittee is responsible for: providing overall policy guidance for, and coordination of, the development and conduct of activities which are part of the President's International Health Strategy; considering other important policy issues pertaining to U. S. international health activities; making policy recommendations to the DCC, to the concerned departments and agencies participating as members of the Subcommittee, and to other Federal departments and agencies as appropriate.

The Subcommittee consists of representatives from the Agency for International Development; Department of Defense; Department of Health, Education, and Welfare; Department of State; Institute for Scientific and Technological Cooperation/Planning Office; National Security Council; Office of Management and Budget; Office of Science and Technology Policy; Department of Agriculture; and ACTION.

The Subcommittee will prepare an annual report for the Chairman, DCC, to the President on the status of, and future plans for, the President's International Health Strategy. This report will also serve as the annual report of the Subcommittee to member departments and agencies.

The Subcommittee had its first meeting in November 1978. Issues identified as potential for subcommittee deliberations were:

1. coordination of multinational donor support for WHO-related programs;
2. formulation of principles and priorities underlying United States policies in international health;
3. policy formulation, planning, budgeting, evaluation in relation to United States international health activities;
4. International Health Service Corps;
5. consortia of United States and foreign universities;
6. international health legislation.

While the major focus of the Subcommittee will be primarily on the developing countries, it will not be exclusively so.

As a result of Subcommittee action, an International Health Reporting System was initiated in 1980 with the purpose of preparing an annual Government-wide report on international health programs.

Observations

The factors which precipitated confrontation on the proposed International Health Research Act of 1960 are in evidence today. Increased United States international health endeavors continue to be plagued by agency conflicts due to a blurring of functional responsibilities as well as differences between the Executive and Legislative branches. Health assistance programs are viewed as being within the purview of an assistance agency so that health may be one element in a broader economic and social program of assistance. This is in lieu of health assistance programs being integrated into overall health programs within a health agency which has both a domestic and international function.

The mechanism chosen to ameliorate such confrontation is "coordination," which was tried in 1946–49, 1960 and once again in 1978. In 1946–49, a Subcommittee on International Health reported to a Committee on International Social Policy. In 1960, the Secretary of HEW chaired an Interdepartmental Committee on International Health Policy. In 1980, health deliberations are at the level of a Subcommittee which is co-chaired by AID and HEW representatives, and which reports to a Development Coordination Committee. International health programs are viewed primarily as those in conjunction with developing countries, although the Subcommittee has indicated it may concern itself with all international health programs.

It will be interesting to observe whether this latest coordination mechanism will (1) serve as forum for exchange of information, (2) address issues at the policy level across all international biomedical research, communications, and health programs and not solely those related to development, (3) make only those decisions necessary at the interdepartmental level. An item which would be worthy of examination by the Subcommittee is the concept of a "delegated agent" or "earned autonomy." This would assign to an agency that level of responsibility and decision-making consistent with its expertise and performance. It would also allocate the function of overall analysis and synthesis to a policy level where coordination can be most effective.

Chapter V

INTERNATIONAL COOPERATION: THE MULTILATERAL ORGANIZATION

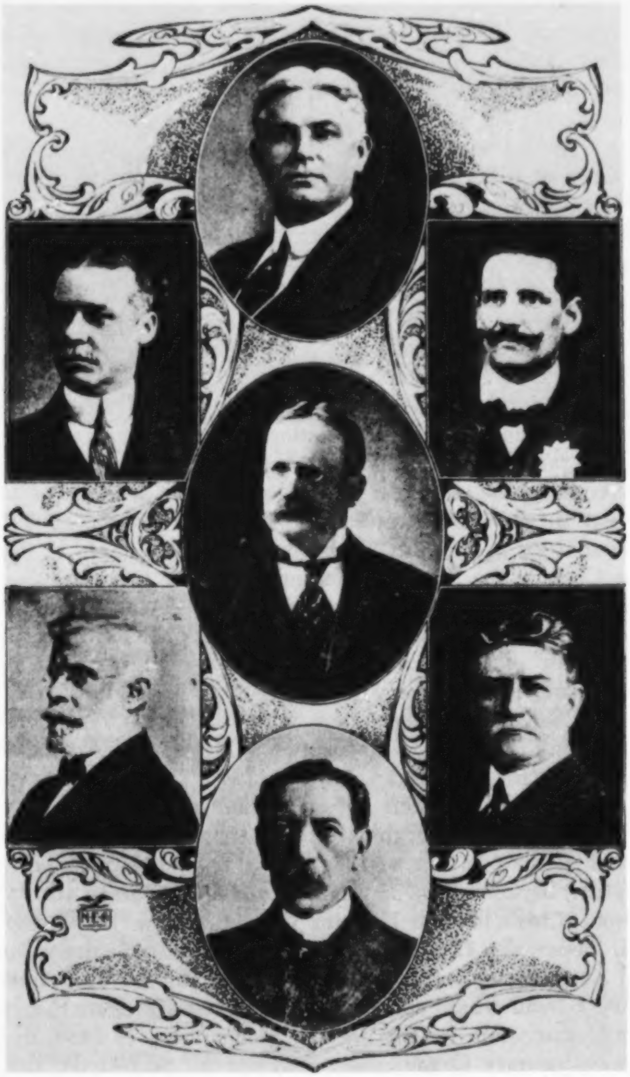
General Background

INTERNATIONAL HEALTH ACTIVITIES may be conducted within the setting of several types of international organizations—those whose primary purpose is health or those in which health is subservient to an economic, political, or societal mission. The latter setting can be likened to that of United States Federal Departments such as Commerce, Interior, and Health, Education, and Welfare which are often described as mission-oriented, but which have components concerned with science or research. Examples of international organizations with broad objectives but which may encompass science are the Food and Agriculture Organization (FAO), United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Atomic Energy Agency (IAEA), the United Nations Children's Fund (UNICEF), the International Refugee Organization (IRO), the International Civil Aviation Organization (ICAO), the International Labor Organization (ILO), and the Organization for Economic Cooperation and Development (OECD). Two international governmental organizations whose primary role is health are the World Health Organization (WHO) and the Pan American Health Organization (PAHO). The latter includes the Pan American Sanitary Bureau (PASB) which is a Regional Office of WHO.

The need for a health organization such as WHO or PAHO originated in the impediments to international trade and commerce caused by communicable diseases and the spread of epidemics across national boundaries. Faced with epidemic diseases, 12 governments met in 1851 at the invitation of France to discuss quarantine measures in an effort to reach agreement on international quarantine regulations. Two representatives, a physician and a diplomat, attended from Austria, France, Great Britain, Greece, the Papal States, Spain, the Two Sicilies, Portugal, Russia, Sardinia, Tuscany, and Turkey. This meeting constituted the first International Sanitary Conference. No agreement on conventions and regulations was reached then or in the subsequent five International Sanitary Conferences in 1859, 1866, 1874, 1881, and 1885. The first International Sanitary Convention adopted was on cholera at the seventh International Sanitary Conference in 1892.

The eleventh International Sanitary Conference in 1903 supported the concept of "an international health office at Paris" and the Office International d'Hygiène Publique (OIHP) was established in 1907. Later in 1920, the League of Nations moved to establish a "Permanent International Health Organization" as part of the League. Predating these two international health organs was the International Sanitary Board (ISB) created in the Western Hemisphere in 1902.

Delegates to the Fourth International Sanitary Conference in San Jose, Costa Rica in 1910. Considerations at the Conference involved international cooperation in smallpox vaccination, malaria, and tuberculosis control, national health legislation and tropical disease research. (Courtesy of the World Health Organization)



Leaders in the establishment of the International Sanitary Bureau in 1902. Top to bottom and left to right: **Dr. D. H. Doty (U.S.A.), Dr. Juan Guiteras (Cuba), Dr. Juan J. Ullca (Costa Rica), Dr. Walter Wyman (U.S.A.), Dr. Eduardo Liceaga (Mexico), Dr. Eduardo Moore (Chile), and Dr. Rhett Goode (U.S.A.). (Courtesy of the World Health Organization)**

The American Republics had convened the First International Conference of American States in 1890, and the Conference established a committee to study sanitary policies. The committee's report, presented to the Second International Conference of American States in 1901–02, recommended an International Sanitary Conference to agree on uniform sanitary regulations. In December 1902, the International Sanitary Bureau was established to coordinate sanitary activities and provide technical assistance. The ISB was essentially a communications mechanism informing member countries of outbreaks of communicable diseases. In 1924, the Pan American Sanitary Conference approved the Pan American Sanitary Code which changed the name of the International Sanitary Bureau to the Pan American Sanitary Bureau (PASB). The Code gave the PASB increased responsibility in preventing the spread of disease, with authority to promote cooperative endeavors, exchange information, standardize measures relating to protection against communicable diseases and standardize the collection of morbidity and mortality statistics.

In 1947 the Pan American Sanitary Organization was constituted with four organs, the Pan American Sanitary Conference, the Directing Council, the Executive Committee of the Directing Council, and the Pan American Sanitary Bureau. The establishment of the World Health Organization in 1948 as the global health organization with the planned absorption of existing international health bodies prompted disagreements on how to "integrate" the Pan American Sanitary Organization with the new World Health Orzanization. The WHO Constitution (Chapter XI, Article 44(a)) provided for "Regional arrangements," i.e., "The Health Assembly shall from time to time define the geographical areas in which it is desirable to establish a regional organization." This provision suggested a mechanism for establishing a relationship, if not total integration, between the Pan American Sanitary Bureau and WHO. Dr. Brock Chisholm, the Director General of the WHO and Dr. Fred L. Soper, the Director of the Pan American Sanitary Bureau signed an agreement on May 24, 1949 whereby the Pan American Sanitary Bureau would serve as the Regional Office of the World Health Organization for the Western Hemisphere. In 1958, the Pan American Sanitary Organization (but not its Secretariat, the Pan American Sanitary Bureau) changed its title to the Pan American Health Organization (PAHO).

The relationships of the Office International d'Hygiène Publique, the Health Section of the League of Nations (*1*) and the United

Dr. Brock Chisholm, Director General of the World Health Organization and Dr. Fred Soper, Director of the Pan American Sanitary Bureau signed a formal agreement in 1949 in New York establishing the Pan American Sanitary Bureau as a Regional Office of the World Health Organization. The Pan American Sanitary Organization was to be known subsequently as the Pan American Health Organization. (Courtesy of the World Health Organization)

Nations Relief and Rehabilitation Administration (UNRRA) Health Division (established in 1943) and the evolution of the World Health Organization and Pan American Health Organization have been described in detail. (2) A schema showing the overall chronology of organizations which resulted in WHO and PAHO is given in Table 41. Table 42 gives the date of founding of WHO and PAHO and of United States participation and authorizations for membership. The rationale for the financial arrangements differs for the two organizations, but United States membership assessment for both is paid by the Department of State and additional funding may be provided by voluntary contributions.

World Health Organization (WHO)

The United Nations and Health

A review of the original documents relating to the preparation for and the establishment of WHO illustrates the interest and participation of the United States, and that preoccupations then are not dissimilar to those of today. In 1939, United States officials

Table 41.—Development of International Health Organizations

	Latin	Global
1902	International Sanitary Bureau (ISB)	
1907	↓	Office International d'Hygiène Publique (OIHP).
1920	↓	League of Nations Health Organization.
1924	Pan American Sanitary Bureau (PASB).	
1943	↓	United Nations Relief and Rehabilitation Administration (UNRRA), Health Division.
1946	↓	Interim Commission for World Health Organization (WHO).
1947	Pan American Sanitary Organization (PASO). Pan American Sanitary Conference. Directing Council Executive Committee Pan American Sanitary Bureau	
1948		World Health Organization (WHO).
1949	Pan American Sanitary Bureau as Regional Office of WHO.	
1958	Pan American Sanitary Organization (PASO) to Pan American Health Organization (PAHO).	

were discussing the possibility of the eventual consolidation of all international health activities into a single international health organization which would also integrate by agreement existing regional organizations.* Interrupted by World War II, these discussions resumed in 1942 and centered on the nature of an international health organization and how it would relate to an overall general international organization. Questions being posed concerning the health organization were: should it be centralized or include regional offices? should it be a research and advisory body with the authority to call conferences and draft conventions and regulations for action by Member States? should it be a research and advisory body with administrative powers to take action on international health activities? should it be a research, advisory and administrative body with quasi-legislative powers?

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* Based on material deposited by Howard B. Calderwood in the collection of the United States National Library of Medicine.

Alternatives for the relationship of the international health organization to a general international organization were: (1) that the health organization might be autonomous within an international organization and created by a separate charter with its own funds; (2) that the health organization might be an integral part of an international organization and under its control on policies and procedures or (3) that the health organization might be independent of an international organization with only a "loose connection" to it, with its headquarters elsewhere and with its own funds and personnel.

As preparations were being made for the San Francisco Conference on International Organization, informal discussions on the need for an international health organization were being held in Washington among health officials of several countries—Dr. Thomas Parran, Surgeon General of the United States Public Health Service; Dr. Szeming Sze, Senior Technical Expert of the National Health Administration, China; Dr. Geraldo H. de Paula Souza of

Table 42.—The United States and International Intergovernmental Health Organizations

Organization	Date Founded	Authorization—U.S. Participation	Date Effective
World Health Organization.[1]	1948 (as special agency of United Nations).	Constitution of WHO July 22, 1946 62 Stat. 2679, TIAS 1808, 22 U.S.C. 290 (1952), 62 Stat. 441 (1948).	1948.
Pan American Health Organization.[2]	1902	The Pan American Sanitary Code, Nov. 14, 1924, 44 Stat. 2031, TS 714.	1902.

[1] Preceded by United Nations Relief and Rehabilitation Administration and its Health Division, Office International d'Hygiène Publique, League of Nations Health Organization.

[2] Established as International Sanitary Bureau (1902), then Pan American Sanitary Bureau (1924), Pan American Sanitary Organization (1947), Pan American Health Organization (1958). (Regional Office of WHO in 1949, and specialized organization of the Organization of American States in 1950).

Based on: U.S., Department of State, *United States Contributions to International Organizations: 25th Anniversary Report to the Congress for Fiscal Year 1976* (Washington, D.C.: U.S. Government Printing Office, 1978), pp. 64–65 and 80–82.

the University of Sao Paulo, Brazil; and Dr. Xavier Leclainche, Inspector General of the Ministry of Public Health and Population, France. The members of the International Health Affairs Branch in the Division of International Labor, Social and Health Affairs of the Department of State—Dr. James A. Doull, Dr. Henry van Zile Hyde, and Mr. Howard B. Calderwood—were preparing proposals for a draft constitution of an international health organization. Dr. Parran and Mr. Otis E. Mulliken, Chief, Division of International Labor, Social and Health Affairs of the Department of State, recommended that there be a health representative on the United States Delegation to the San Francisco Conference on International Organization. This was not done due to the lateness of the recommendation. However, Dr. James Doull was named subsequently as an advisor to the United States Delegation.

The United Nations (UN) draft charter, under consideration at the 1945 San Francisco Conference on International Organization, contained no reference to health. The development of peaceful relationships was to be achieved by solving international economic, social, cultural, and educational problems. The inclusion of "health" was proposed by the Delegation of Brazil and was accepted. On May 19, 1945, the Brazilian and Chinese Delegations offered a resolution for the creation of an interim commission to study and make recommendations for an international health organization. (3) Because the Steering Committee decided that there would be no resolutions passed by the Conference, the Delegations of Brazil and China stated their purposes in the form of a Declaration. This Declaration, which recommended that a general conference be convened to establish an international health organization, was unanimously approved.

The Charter, adopted for the United Nations, provided for the UN to promote solutions of health problems and to bring existing intergovernmental agencies in health into a relationship with the United Nations. The Economic and Social Council (ECOSOC) was empowered to make studies and recommendations on international health matters (Articles 55, 57 and 62). That there was sensitivity to health issues in the membership of ECOSOC was reflected by the fact that Sir Orcat Mudaliar, a physician from India, had a twin brother who was Chairman of ECOSOC; and the Vice Chairman of ECOSOC was Dr. Andrija Stampar from Yugoslavia who was very active in rural health activities.

ECOSOC's first step (February 1946) was to set up a Technical Preparatory Committee to prepare for the convening of an international health conference. The Technical Preparatory Committee of experts met in Paris in March 1946 to develop a draft annotated agenda and constitutional proposals for consideration by an International Health Conference to be held in New York in June 1946. Drafts had been submitted by Sir Wilson Jameson, Chief Medical Officer, Ministry of Health, United Kingdom; Dr. Thomas Parran, Surgeon General of the United States Public Health Service; Dr. Andrija Stampar, Professor and Rector of the University of Zagreb, Yugoslavia; and Drs. Andre Cavaillon, Secretary General of Health and Xavier Leclainche, Inspector General of the Ministry of Public Health and Population, France for consideration by the Technical Preparatory Committee.

In Dr. Szeming Sze's view (the Chinese delegate) the texts submitted were similar in substance but differed in form. Those of Dr. Stampar and Drs. Cavaillon and Leclainche seemed "to be on traditional lines" while that of Dr. Parran followed "the more modern

Left, Dr. Geraldo H. de Paula Souza, member of the Brazilian Delegation to the United Nations Conference on International Organization (Courtesy of the United Nations); right, Dr. Szeming Sze, member of the Chinese Delegation to the UN Conference on International Organization in San Francisco (1946) (Courtesy of Dr. Henry van Zile Hyde). The Brazilian Delegation proposed that "health" be included in the UN Charter. Subsequently, the Brazilian and Chinese Delegations submitted jointly a declaration that a general conference be convened to establish an international health organization.

Drafting Committee of the Technical Preparatory Committee, Paris, March 1946, left to right: **Dr. Szeming Sze, National Health Administration of China; Dr. Karl Evang, Director General of Public Health, Norway; Dr. Henry van Zile Hyde, U.S. Public Health Service; Mr. Gilbert Yates, Ministry of Health, United Kingdom; and Major C. Mani, I.M.S. Deputy Public Health Commissioner, New Delhi, India. Missing from the photograph was Dr. Brock Chisholm, Deputy Minister of National Health, Canada. (Courtesy of Dr. Henry van Zile Hyde)**

'streamlined' concept, already adopted by the Economic and Social Council." (*4*)

Dr. Parran's technical working paper described the purposes of an international health organization: "(a) To improve the physical and mental health of all peoples through international collaboration and mutual assistance; (b) To prevent the occurrence and spread of disease; (c) To stimulate the development and improvement of health services throughout the world; and (d) To make available to all countries information, counsel and assistance on problems pertaining to health and medical care."

He proposed nine functions which I have regrouped (Table 43) into seven categories: assistance, services, standards, professional education, research and information, relationships, and other. (*5*)

The 1946 International Health Conference adopted the name—the World Health Organization—and one objective: "the attainment by all peoples of the highest possible level of health." Twenty-

**Table 43.—An International Health Organization—
Functions Proposed by U.S. Surgeon General T. Parran—1946**

Assistance to countries upon request:
- Develop health services.
- Epidemics and health emergencies.

Services:
- Establish and maintain epidemiological and statistical service for collection, analysis, interpretation and dissemination of information.

Standards:
- Develop, establish, promote for—
  - Drugs.
  - Biological products.
  - Nomenclature of diseases and public health terms.
  - Diagnostic procedures.
- With other international organizations or agencies in physical or mental health on—
  - Human dietary requirements.
  - Working conditions.
  - Housing.
- Professional teaching and training.

Professional education:
- Fellowships.
- Study tours.
- Exchange visits.

Research and information:
- Promote research.
- Develop interchange of information.

Relationships to:
- International health and sanitary conventions.
- United Nations and its affiliated organizations.
- National health agencies.

Other functions as appropriate.

two functions were agreed upon for the World Health Organization (WHO) and they can be broadly characterized as: general and coordinative, cooperation with other organizations, research and technical services, promotional and educational activities, field operations, and regulatory measures. (*6*) Article 21 of the WHO Constitution empowered the World Health Assembly to adopt regulations concerning sanitary and quarantine requirements; nomenclatures of diseases, of causes of death and of public health practices; diagnostic procedures for international use; standards with respect to the safety, purity and potency of biological, phar-

Top, **Henry Laugier, United Nations Assistant Secretary-General in charge of Social Affairs, welcoming delegates to the International Health Conference, June 19, 1946, New York. With him at the table are Dr. Andrija Stampar, left, Yugoslavia, Vice President of the Economic and Social Council and Dr. Y. M. Biraud, Secretary to the Conference;** bottom, **members of the United States Delegation to the International Health Conference pictured at the first Plenary Session.** Left to right: **Dr. James E. Paulin, former President of the American Medical Association; Dr. Frank G. Boudreau, Director of the Milbank Memorial Fund; Dr. Thomas Parran, the Surgeon General of the U.S. Public Health Service; Durward V. Sandifer, Department of State; and Dr. Martha M. Eliot, Associate Director of the Children's Bureau of the Department of Labor. Dr. Parran was unanimously elected President of the Conference. (Courtesy of the United Nations)**

maceutical and similar products in international commerce; and advertising and labelling of biological, pharmaceutical and other products in international commerce. Prior to this time, such regulations were a matter of conventions and treaties and not within the authority of an international health body. However, Article 22 provided an escape clause for members who could, within a stated period of time, notify the Director General of rejection or reservations.

During the 1946 Conference, 61 nations signed: the Final Act of the International Health Conference (59 without reservation); the Constitution of the World Health Organization (2 without reservation); and an arrangement establishing an Interim Commission (47 without reservation). Sixty states (18 without reservation) signed a protocol concerning the termination of the Office International d'Hygiène Publique (OIHP) with the assumption of the OIHP duties by the World Health Organization or its Interim Commission.

The Constitution of the World Health Organization would come into being when 26 members of the UN had deposited formal instruments of acceptance with the Secretary General. This took almost two years, during which time the Interim Commission functioned with five sessions. In order to preserve the concept that WHO would be the international body in health, the Interim Commission negotiated relationships with UNICEF, the UN, and other specialized agencies. The 18 member countries of the Interim Commission were Australia, Brazil, Canada, China, Egypt, France, India, Liberia, Mexico, The Netherlands, Norway, Peru, the Ukrainian Soviet Socialist Republic, Union of Soviet Socialist Republics, the United Kingdom, the United States of America, Venezuela, and Yugoslavia. With ratification by 26 members of the UN, Byelorussian Soviet Socialist Republic being the 26th, the WHO Constitution came into force in April 1948.

On June 14, 1948, the President of the United States, Harry Truman, submitted to the Secretary General of the United Nations, Trygve Lie, formal acceptance of the WHO Constitution, but with two United States reservations which were at variance with the WHO Constitution. One related to the United States establishing its level of funding for WHO and the other to United States withdrawal. In a Joint Resolution, the United States Congress had stated that "in the absence of any provision in the World Health Organization Constitution for withdrawal from the Organization, the United States reserves its right to withdraw from the Organization on a one-year notice provided the United States financial obligations had been met for that fiscal year." The Secretary General of the UN referred the matter to the First World Health Assembly (WHA) (June 24-July 24, 1948) which required a unanimous decision to resolve the matter. The United States was accepted as a full member at this meeting after a debate which finally concluded that, in spite of the reservations, United States intentions were honorable and dedicated to international health programs.

The official United States policy toward WHO has been and continues to be that it is "in our national interest" to participate; but "national interest" has several connotations and remains to be defined. Furthermore, within the context of WHO, its Executive Board and the World Health Assembly, discussion continues on whether WHO's primary role is to provide leadership, technical assistance, coordination, catalysis, or all four.

Membership and Finance

In 1948, there were 56 members of WHO, 88 in 1958, 131 in 1968, and 153 members in 1979. The WHO effective working budget was $4.8 million in 1948 (including the United Nations Relief and Rehabilitation Agency funds), $5 million for its first full year of operation in 1949, and is $183 million for 1979. Thus, the membership has increased almost threefold; the budget fortyfold. This is a significant increase, although it does not take into account the decrease in the purchasing power of the United States dollar which is used as the currency for the WHO budget. The number of WHO staff was 259 in 1948 and 3,108 (including 438 from PAHO) in 1978–79, but in addition there were 2,306 posts in country and intercountry activities. The scope and diversity of programs and activities have broadened and increased in these 30 years.

The United States interaction with WHO can be described in official, functional, programmatic and fiscal terms. Overall, the United States has demonstrated interest and support of WHO and has provided funds beyond its assessed contribution for certain special projects. However, United States inconstant enthusiasm for WHO research efforts and an unsuccessful United States collaboration in biomedical communications are described subsequently within the broader context of WHO's programs.

The Department of State submits fiscal reports annually to Congress on United States participation in international organizations;

Top, **Dr. Brock Chisholm, first Director General (1948–53) of the World Health Organization. (Courtesy of the Pan American Health Organization)**; bottom, **five chairmen of the World Health Organization Executive Board.** Left to right: **Dr. A. T. Shousha, 1948–49 (Egypt), Dr. Henry van Zile Hyde, 1954–55 (U.S.), Dr. J. Parisot, 1951–52 (France), Dr. Melville MacKenzie, 1953–54 (United Kingdom), Dr. J. S. Gear, 1950–51 (Union of South Africa). Missing from the group were Sir Orcat Mudaliar, 1949–50 (India), and Dr. M. Jafar, 1952–53 (Pakistan). (Courtesy of Dr. Henry van Zile Hyde)**

the Chairman of the United States Delegation prepares program reports after a World Health Assembly meeting; the Comptroller General and the General Accounting Office (GAO) periodically examine various facets of the relationship between the United States and the UN organizations in general and the WHO in particular. (*7*) (*8*) (*9*) (*10*)

In its 1977 report on "U.S. Participation in the World Health Organization Still Needs Improvement," the GAO cited the need for more effective United States participation, the lack of WHO evaluation of program activities, and the need to develop some United States priorities vis-a-vis WHO. GAO expressed reservations on WHO's becoming a channel for development and technical assistance; GAO views these as proper functions of the United Nations Development Program.

From the inception of WHO, the United States has officially and consistently tried to obtain an assessment for the United States at the level of 25%. The United States opposed from the beginning a scale of contributions based on the UN system and expressed its concern about an international organization relying too heavily on the financial support of a single member. However, over the objections of the United States, the levels of assessment adopted by the WHA in 1949 apportioned 39.89% to the United States as its share.

During the Second World Health Assembly, the United States delegate, Dr. Leonard Scheele (then Surgeon General of the PHS) stated that the WHO scale of assessment should not follow that of the UN because membership and functions were different. Dr. Scheele believed that it was neither necessary nor desirable to conform with the UN practice; it was not followed by any other permanent UN specialized agency. He quoted figures on the maximum contribution by any Member State to specialized agencies: Food and Agriculture Organization of the United Nations (FAO) 25%; International Civil Aviation Organization (ICAO) 18.66%; International Labor Organization (ILO) 18.35%; International Telecommunication Union (ITU) 7.76%; Universal Postal Union (UPU) 4.3%. UNESCO had originally used the UN scale with the United States assessment at 41.48%. However, UNESCO took action to reduce the United States contribution to one-third of the total in three stages beginning in 1949. Thus, WHO was the only specialized agency, according to Dr. Scheele, whose scale was based on the UN. (*11*)

Extensive WHO discussion produced a resolution proposing reduction of the United States contribution to 36%. Dr. Scheele noted, however, that 36% of a WHO budget of $7 million would be in excess of the amount authorized by the United States Government. The resolution finally passed, recognizing that it was in the best interest of WHO that "no one Member State should contribute more than one-third to the regular expenses of WHO for any year, provided that the per capita contribution of any Member State shall not exceed the per capita contribution of the Member paying the highest contribution . . . ." (*12*)

This principle was to be effective starting in 1950. The scale of assessments was to be based on that for 1948 and 1949 with appropriate adjustments to establish the contribution of the United States at 36% of the total. The final reduction to 25% took almost thirty years to achieve, and it was accomplished because the United States Congress placed statutory limitations on United States contributions to the UN and its specialized agencies in 1952 to 33⅓% and in 1972 (effective 1974) to 25%. This Congressional action strengthened the position of the United States Delegation in its discussions within the WHO setting.

Comparison of budgets, assessments, and voluntary contributions is difficult due to arrears in assessment payments, inactive members,* and some discrepancies among published documents. These have been noted wherever possible. Table 44 illustrates that the effective working budgets for 1977 and for 1979 are less than the total net assessments. The regular budget of WHO allocated to broad program areas is given in Table 45 for 1975–79.

The WHO effective working budget and United States net assessments (contributions) for 1948, 1958, 1968, 1978 and 1979 are given in Table 46. United States net assessments for a thirty-two year period (from 1948 through 1979) total $490 million (Table 47), with 41% accounted for in the last five years. In 1948, 12% of the Member States contributed 75% of the budget. The United States contributed 39.89%, two countries (United States and the United Kingdom), 51%; seven countries (United States, the United Kingdom, USSR, France, China, India/Pakistan, Canada) contributed 75%; and 11 countries approximately 83% of the funds. In 1979, 7% of the Member States contributed 75% of the budget. One country (United States) contributed 25%; four countries (United States, USSR, Japan, Germany) contributed 52%; 10 countries, 76%; and 15 approximately 83% of the funds. Table 48 shows the 15 countries with the highest assessment for 1975–79. In 1979, 102 countries contributed less than 0.1% and 134 countries less than 1% of the assessment. Thus, the increase in the number of member countries has not been accompanied by increased capability to contribute on a member country basis.

Payment of the United States dues assessment by the Department of State for Fiscal Year 1979 was delayed. Senator Helms in-

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* Term used by WHO to refer to members who have ceased participation in the work of the Organization because the WHO Constitution contains no provision for withdrawal. The USSR, the Ukraine, Byelorussia, Bulgaria, Romania, Czechoslovakia, and Poland were inactive members from 1949–57.

Table 44.—World Health Organization

	1975 (US $)	1976 (US $)	1977 (US $)	1978 (US $)	1979 (US $)
Total Net Assessment	[1] 115,387,310	[2] 138,031,333	[3] 149,091,780	[4] 167,754,230	[4] 187,228,830
Effective Working Budget	[5] 119,310,000	[5] 138,910,000	[5] 147,184,000	[5] 165,000,000	[6] 182,730,000

[1] World Health Organization, *Financial Report 1 January–31 December 1975, Supplement to the Annual Report of the External Auditor to the World Health Assembly* (Official Records of the World Health Organization No. 230), 1976, p. 43.

[2] World Health Organization, *Financial Report 1 January–31 December 1976 and Report to the External Auditor to the World Health Assembly* (Official Records of the World Health Organization No. 237), 1977, p. 43.

[3] World Health Organization, *Proposed Programme Budget for the Financial Years 1978 and 1979* (Official Records of the World Health Organization No. 236), 1976, p. 97.

[4] World Health Organization, *Executive Board Sixty-first Session, Geneva, 11–26 January 1978, Part II Report on the Proposed Programme Budget for 1978–1979 (Financial Year 1979)* (Official Records of the World Health Organization No. 245), 1978, p. 186.

[5] Data provided courtesy of Mr. Lyndall Beamer, Office of International Health, HEW.

[6] World Health Organization, *Thirty-first World Health Assembly Appropriations Resolution for 1979* (WHA31.22, 19 May 1978).

NOTE.—WHO supplemental actions resulted in actual obligations as of July 9, 1979 as follows:

For 1977—Total Net Assessment $149,077,140; Effective Working Budget $146,879,000.

For 1978—Total Net Assessment $167,765,100; Effective Working Budget $170,989,000.

troduced an amendment to the Department of State Appropriations Bill for 1979 (PL 95–431) relating to those funds appropriated for payment of United States assessed contributions to the United Nations and its specialized agencies. The Amendment specified that of these dues ". . . no part may be made available for the furnishing of technical assistance by the United Nations or any of its specialized agencies." Thus, $27 million was deleted from $355 million; and of this $27 million, approximately $20 million was deleted from the United States assessed contribution of $49.2 million to the WHO. When the President signed the Appropriations Bill for the Department of State in October, 1978, he issued a statement that action would be taken to meet the United States obligation for payment of its dues to the World Health Organization. This action was taken with the passage of PL 96–60, August 15, 1979, which was the Department of State Authorization Act, Fiscal Years 1980 and 1981. Title 1, Section 110 struck out the restrictive phrasing in PL 95–431 and enabled the U.S. to pay its dues to WHO for FY 1979.

According to the Department of State reports to Congress, the United States made its first voluntary contributions to WHO Special Programs in 1957. The United States contributed $5 million to the Malaria Eradication Program, which was 90.75% of the total contribution. Forty-four countries, for the period 1956 through April 30, 1960, contributed $11.9 million which, with miscellaneous gifts of $38,632, and pledges of $185,186, totaled $12.1 million for the Malaria Eradication Special Account. The contributions of China, Poland, and the USSR were in kind. The USSR's total contribution was $332,500, and the United States' $11 million. The Director General, in his review of this Malaria Eradication Special Account, noted the repeated unsuccessful appeals to all countries made by WHO and the Executive Board, yet the United States remained the principal contributor (90%) of the Malaria funds. (*13*) In the next two years, the United States contributed $6.5 million additional. Table 49 shows the United States contributions of $38.8 million to WHO special programs in malaria eradication, community water development, medical research, and the International Agency for Research on Cancer between 1958 and 1977. For a five-year period (1959–63) the United States was the sole contributor to the medical research program. The NIH provided $11.6 million for the period 1959 through 1978 in research grants and contracts to WHO and the International Agency for Research on Cancer (Table 50).

Table 45.—Distribution of World Health Organization Regular Budget Funds by Program (1975–1979)

Program Areas	1975 Revised Appropriation		1976 Appropriation	
	US $	%	US $	%
Policy organs	1,711,400	1.4	2,018,900	1.5
General management and coordination [1]	6,390,738	5.4	7,090,601	5.1
Strengthening of health services	19,654,215	16.5	21,899,433	15.8
Health manpower development	15,507,037	13.0	17,916,895	12.9
Disease prevention and control	28,302,290	23.7	33,322,955	23.9
Promotion of environmental health	6,892,705	5.8	7,856,495	5.7
Health information and literature	12,238,263	10.2	14,163,505	10.2
General service and support programs	15,435,362	12.9	19,610,475	14.1
Support to regional programs	13,177,990	11.0	15,030,741	10.8
Effective Working Budget	119,310,000		138,910,000	

[1] Includes $5 million for technical cooperation and services for developing countries.

1975—World Health Organization, *The Work of WHO 1975, Annual Report of the Director-General to the World Health Assembly and to the United Nations* (Official Records of the World Health Organization No. 229), 1976, p. 358.

1976—World Health Organization, *Financial Report 1 January–31 December 1976 and Report of the External Auditor to the World Health Assembly* (Official Records of the World Health Organization No. 237), 1977, p. 35.

Voluntary Fund for Health Promotion

Because the regular budget was not adequate to finance a number of activities, a special Voluntary Fund for Health Promotion was established in 1960 by the World Health Assembly (Resolution 13.24). These extra budgetary funds have been significant in enlarging the fiscal capacity of WHO for increased program activities.

In a 1976 Review of the Voluntary Fund (*14*) the Executive Board examined three issues: the conditions for accepting contributions; the allocation of resources among the regions; and the role and functions of the Secretariat Committee for the overall management of all extra budgetary sources of funds, including the Voluntary Fund. The report by the Director General concluded that donor contributions would not distort program emphasis or priorities because of the relationship between the program of work, the biennial program budgeting in longer-term planning, and the final program selection and evaluation criteria.

The total contributions from Members and other contributors to the Voluntary Fund for Health Promotion from its inception

1977 Appropriation		1978 Appropriation		1979 Appropriation	
US $	%	US $	%	US $	%
2,252,940	1.5	2,553,900	1.5	4,226,300	2.3
7,887,441	5.4	17,118,285	[1]10.4	15,069,000	[1]8.2
23,699,362	16.1	25,030,839	15.2	25,764,100	14.1
19,693,803	13.4	20,873,990	12.6	23,659,800	12.9
32,610,591	22.2	36,235,524	22.0	41,946,000	23.0
8,276,827	5.6	8,165,580	4.9	9,689,800	5.3
15,728,280	10.7	15,987,400	9.7	18,210,700	10.0
20,695,055	14.1	20,800,800	12.6	24,997,400	13.7
16,339,701	11.1	18,233,682	11.1	19,166,900	10.5
147,184,000		165,000,000		182,730,000	

1977—World Health Organization, *Handbook of Resolutions and Decisions of the World Health Assembly and the Executive Board* (Vol. II, 2d ed., 1973–1976), 1977, p. 78.

1978—World Health Organization, *Proposed Programme Budget for the Financial Years 1978 and 1979* (Official Records of the World Health Organization No. 236), p. 98.

1979—World Health Organization, *Thirty-first World Health Assembly Appropriations Resolution for 1979* (WHA 31.22, 19 May 1978).

until December 31, 1977 were $177.8 million. As country donors, Sweden ($52 million) and the United States ($42 million) contributed 53% of this amount. Eight members contributed 80%; all other Members contributed 11%; and other contributors 9%. Four of these other contributors—the Japan Shipbuilding Industry Foundation, the United Nations Fund for Population Activities, the International Development Research Center of Canada, and the Ford Foundation of the United States donated a total of $8.7 million or 5% of the total amount received by the Voluntary Fund for Health Promotion up to December 31, 1977 (Table 51). (*15*)

Table 52 gives a cumulative total of funds in the Voluntary Fund as of December 31, 1977, their distribution by special accounts, and the United States contributions. Eighty-eight million dollars or 50% of the approximately $178 million contributed from 1960–77 were for medical research. Of these $88 million for medical research, 60% or $52 million ($32 million from Sweden) were specified for research in human reproduction, and 15% or $14 million were specified for research and training in tropical diseases. (*16*)

Of the $42 million from the United States, $12 million was specified for 33 research projects, including $1.9 million for a research unit on genetic control of mosquitos in India; $1.74 million

Table 46.—World Health Organization Budget and United States Contributions in Thousands of Dollars

Year	WHO [1] Effective Working Budget	U.S. Net Contributions [2]	
	$	$	%
1948	[3] 4,800	[4] 1,861	[5] 38.77
1958	[6] 13,566	[7] 4,666	[5] 32.38
1968	[8] 56,123	[9] 18,076	[10] 31.20
1978	[11] 165,000	[12] 45,191	[11] 25.00
1979	[13] 182,730	[14] 49,197	[14] 25.00

[1] Effective working budget is based on contributions received. These are less than 100% of amount assessed.

[2] The net assessments are derived from a gross assessment, which has been adjusted for credits from the tax equalization fund.

[3] World Health Organization, *Financial Report 1 September–31 December 1948 and Report of the External Auditor* (Official Records of the World Health Organization No. 20), 1949, p. 12.

[4] Ibid, p. 15.

[5] U.S., Congress, House, *United States Contributions to International Organizations 1965* (House Document No. 455), 89th Congress, 2d sess., 1966.

[6] World Health Organization, *Financial Report 1 January–31 December 1958, Supplement to the Annual Report of the Director-General for 1958 and Report of the External Auditor to the World Health Assembly* (Official Records of the World Health Organization No. 93), 1959, p. 12.

[7] Ibid, p. 21.

[8] World Health Organization, *Financial Report 1 January–31 December 1968, Supplement to the Annual Report of the Director-General for 1968 and Report of the External Auditor to the World Health Assembly* (Official Records of the World Health Organization No. 175), 1969, p. 10.

[9] Ibid, p. 16.

[10] U.S., Congress, House, *United States Contributions to International Organizations Twenty-Third Annual Report* (House Document No. 94–333), 94th Congress, 2d sess., 1976.

[11] World Health Organization, *Proposed Programme Budget for the Financial Years 1978 and 1979* (Official Records of the World Health Organization No. 236), 1976, p. XXVII.

[12] World Health Organization, *Executive Board Sixty-first Session, Geneva, 11–26 January 1978, Part II Report on the Proposed Programme Budget for 1978–1979 (Financial Year 1979)* (Official Records of the World Health Organization No. 245), 1978, pp. 184–186.

[13] World Health Organization, *Thirty-first World Health Assembly, Appropriations Resolution for 1979* (WHA 31.22, 19 May 1978).

[14] World Health Organization, *Information Document, Contributions of Members and Associate Members to the 1979 Budget* (Thirty-first World Health Assembly), 1978.

on insecticide resistance and vector control (arthropod-borne diseases); $1.3 million for an international pilot study on schizophrenia; $0.9 million for virus diseases, immunological surveys and vaccine studies. Eighteen million dollars was for malaria and $6 million for smallpox eradication.

The World Health Organization in 1955 initiated a global eradication campaign against malaria and in 1958 against smallpox. Total malaria control and eradication have not been achieved. Parasites resistant to commonly used drugs and the lack of a vaccine have compounded the technical difficulties. WHO resolved in 1966 to attempt to eradicate smallpox globally. Three hundred members of the Center for Disease Control of HEW worked in countries around the world and the United States invested approximately $27 million. The successful completion of this campaign is described in Chapter VII.

Table 47.—Summary of U.S. Contributions to World Health Organization

U.S. Contributions	In Thousands
1948–74 cumulative total	[1] $290,519
1975	[2] 30,148
1976	[3] 35,981
1977	[4] 39,637
1978	[5] 45,191
1979	[6] 49,197
	$490,673

[1] U.S., Congress, House, *United States Contributions to International Organizations Twenty-Third Annual Report* (House Document No. 94–333), 94th Congress, 2d sess., 1976, Chart Face p. 115.

[2] World Health Organization, *Financial Report 1 January–31 December 1975, Supplement to the Annual Report of the Director-General for 1975 and Report of the External Auditor to the World Health Assembly* (Official Records of the World Health Organization No. 230), 1976, p. 42.

[3] World Health Organization, *Financial Report 1 January–31 December 1976 and Report to the External Auditor to the World Health Assembly* (Official Records of the World Health Organization No. 237), 1977, p. 42.

[4] World Health Organization, *Proposed Programme Budget for the Financial Years 1978 and 1979* (Official Records of the World Health Organization No. 236), 1976, p. 97.

[5] World Health Organization, *Executive Board Sixty-first Session, Geneva, 11–26 January 1978, Part II Report on the Proposed Programme Budget for 1978–1979 (Financial Year 1979)* (Official Records of the World Health Organization No. 245), 1978, pp. 184–186.

[6] World Health Organization, *Information Document, Contributions of Members and Associate Members to the 1979 Budget* (Thirty-first World Health Assembly), 1978.

Within the last ten years, the United States has removed vaccination requirements for two other diseases—yellow fever and cholera. This is a result of the work of WHO and its member countries. WHO's achievements relating to vaccination, immuniza-

Table 48.—World Health Organization Scale of Net Assessments by Country (1975–1979)

	1975 Contributions		1976 Contributions	
	[1] US $	[2] %	[3] US $	[4] %
USA	30,148,930	25.67	35,981,480	25.64
USSR	14,958,420	12.97	17,765,130	12.97
Japan	8,073,180	7.00	9,587,970	7.00
Germany (FR)	7,957,840	6.90	9,450,990	6.90
France	6,669,450	5.73	7,957,490	5.73
China	6,216,340	5.39	7,382,730	5.39
United Kingdom	6,124,070	5.31	7,273,150	5.31
Italy	4,036,580	3.50	4,793,990	3.50
Canada	3,079,790	2.67	3,660,640	2.67
Spain	—		—	
Ukranian SSR	1,972,160	1.71	2,342,210	1.71
Australia	1,626,170	1.41	1,931,290	1.41
Poland	1,453,180	1.26	1,725,840	1.26
India	1,383,980	1.20	1,643,660	1.20
Netherlands	1,383,980	1.20	1,643,660	1.20
Belgium	1,176,380	1.02	—	
Germany (DR)	—		1,616,260	1.18
15 Countries	96,260,450	82.94	114,756,490	83.07
Total Net Assessment	115,387,310		138,031,333	
Number of Members and Associate Members		[1] 148		[3] 153
Number of Countries:				
Less than 1%		134		135
Less than .1%		95		102

[1] World Health Organization, *Financial Report 1 January–31 December 1975, Supplement to the Annual Report of the Director-General for 1975 and Report of the External Auditor to the World Health Assembly* (Official Records of the World Health Organization No. 230), 1976, pp. 40–43.

[2] World Health Organization, *Twenty-Seventh World Health Assembly, Geneva, 7–23 May 1974 Part I, Resolutions and Decision Annexes* (Official Records of the World Health Organization No. 217), 1974, pp. 5–6.

[3] World Health Organization, *Financial Report 1 January–31 December 1976 and Report to the External Auditor to the World Health Assembly* (Official Records of the World Health Organization No. 237), 1977, pp. 40–43.

[4] World Health Organization, *Proposed Programme Budget for the Financial Years 1976 and 1977* (Official Records of the World Health Organization No. 220), 1974, pp. 56–61.

tion and public health matters have been recounted elsewhere by others. I shall explore research and biomedical information functions within the context of WHO as an international intergovernmental organization.

1977 Contributions		1978 Contributions		1979 Contributions	
[5] US $	[6] %	[7] US $	[5] %	[8] US $	[8] %
39,637,540	25.54	45,191,920	25.00	49,197,090	25.00
19,002,420	12.97	18,487,090	11.33	20,990,260	11.42
10,270,400	7.00	13,853,070	8.49	15,623,220	8.50
10,123,880	6.90	12,270,330	7.51	13,932,230	7.58
8,561,100	5.73	9,180,860	5.53	10,701,140	5.73
7,911,570	5.39	8,762,190	5.37	9,943,720	5.41
7,779,700	5.31	7,244,710	4.44	8,179,210	4.45
5,142,520	3.50	5,237,740	3.21	6,102,250	3.32
3,916,370	2.67	4,682,960	2.87	5,497,410	2.99
—		2,480,170	1.52	2,775,420	1.51
2,505,330	1.71	2,447,530	1.50	2,775,420	1.51
2,065,800	1.41	2,414,910	1.48	2,775,420	1.51
1,846,030	1.26	2,284,380	1.40	2,518,100	1.37
1,758,130	1.20	—		—	
1,758,130	1.20	2,170,150	1.33	2,573,240	1.40
—		—		—	
1,743,480	1.18	2,137,520	1.31	2,407,820	1.31
124,022,400	82.97	138,845,530	82.29	155,991,950	83.01
149,091,780		167,754,230		187,228,830	
	[5] 153		[6] 153		[8] 153
	137		135		134
	102		102		102

[5] World Health Organization, *Proposed Programme Budget for the Financial Years 1978 and 1979* (Official Records of the World Health Organization No. 236), 1976, pp. 92–97.

[6] World Health Organization, *Executive Board Fifty-Seventh Session, Geneva, 14–30 January 1976, Part I Resolutions Annexes, Part II Report on the Proposed Programme Budget for 1976–1977 (Financial Year 1977)* (Official Records of the World Health Organization No. 231), 1976, pp. 265–267.

[7] World Health Organization, *Executive Board Sixty-first Session, Geneva, 11–26 January 1978, Part II Report on the Proposed Programme Budget for 1978–1979 (Financial Year 1979)* (Official Records of the World Health Organization No. 245), 1978, pp. 184–186.

[8] World Health Organization, *Contributions of Members and Associate Members to the 1979 Budget* (Thirty-first World Health Assembly Information Document A31/INF.DOC/4, 19 May 1978).

Research

On October 3, 1946 prior to the formal establishment of WHO, the Research Division of the United Nations Department of Social Affairs had studied the question of establishing international research laboratories in order to achieve greater efficiency in research in various fields, including medicine and public health. Tuberculosis was suggested as an appropriate area for such an international un-

United States Secretary of State John Foster Dulles presents two checks, one in the amount of $5 million to Dr. M. G. Candau, Director General of the World Health Organization and the other for $2 million to Dr. Fred L. Soper, Director of the Pan American Sanitary Bureau, Regional Office for the Americas of the World Health Organization. The United States Government contributions were to the Special Malaria Eradication Funds set up by the two organizations. (December 5, 1957, U.S. Department of State) left to right: Dr. Candau, Secretary of State Dulles, and Dr. Soper. (Courtesy of the Pan American Health Organization)

dertaking. The Economic and Social Council (ECOSOC) considered that certain research activities can only be performed "in a rational manner" on an international scale and that research for the promotion of human knowledge, and especially in public health, would yield more effective results if conducted on an international basis. ECOSOC passed a resolution inviting the Secretary General, after consultation with UNESCO and the other UN specialized agencies,

Table 49.—United States Contributions to Special Programs of World Health Organization in Thousands of Dollars

Calendar Year	Malaria Eradication Program	Community Water Development Program	Medical Research	Cancer (IARC)[1]	Total
1958	$5,000				$5,000
1959	3,000		300		3,300
1960	3,000	300	500		3,800
1961	4,000	175	500		4,675
1962	2,500	400	500		3,400
1963			500		500
1964			500		500
1965				75	75
1966				150	150
1967					[2] 190
1968					106
1969					89
1970					55
1971					798
1972					1,127
1973					1,933
1974					1,561
1975					2,500
1976					4,597
1977					4,421 (E)
1978					N/A
					[3] $38,777

[1] IARC—International Agency for Research on Cancer.

[2] Only summary figures were provided for CY 1967-1977.

[3] The report indicated that contributions listed are from the Department of State or the Agency for International Development, except where noted that another agency of the U.S. Government was the source. There were no qualifications on these data for the U.S. contributions to WHO Special Programs to indicate other than State or AID funding.

Source: U.S., Congress, House, *United States Contributions to International Organizations* (House Document 455, 1966; House Document 94-333, 1976; House Document 95-11, 1977; U.S. Department of State, *United States Contributions to International Organizations: 25th Anniversary Report to the Congress for Fiscal Year 1976* (Washington, D.C.: U.S. Government Printing Office, 1978).

to submit to ECOSOC a report "on the problem of establishing UNITED NATIONS RESEARCH LABORATORIES." (*17*)

During the 1946 deliberations of the Interim Commission, Dr. Henry van Zile Hyde, the United States delegate, introduced a resolution requesting ESOSOC to limit its action in this area of research and inviting ECOSOC attention to the WHO Constitution. Article 2 listed the promotion and conduct of research in the field of health as a function of WHO. Article 18 stated that the WHO shall ". . . promote and conduct research in the field of health by the personnel of the Organization, by the establishment of its own institutions or by co-operation with official or non-official institutions of any Member with the consent of its Govern-

Table 50.—National Institutes of Health Funding to World Health Organization and International Agency for Research on Cancer in Thousands of Dollars

FY	Grants	Contracts		Total
		WHO	IARC	
1959	[1] $300			$300
1960	0			0
1961	283			283
1962	330			330
1963	341			341
1964	276			276
1965	341			341
1966	336			336
1967	23			23
1968	19			19
1969	0			0
1970			252	252
1971			248	248
1972		120	935	1,055
1973		385	650	1,035
1974		166	900	1,066
1975		204	1,224	1,428
1976 (TQ) [2]	55	146	1,401	1,602
1977	0	0	1,412	1,412
1978	0	60	1,199	1,259
Total	$2,304	$1,081	$8,221	$11,606

[1] Study by WHO on international health research. Data for 1959–61 from HEW Appropriation Hearings. Data for 1961–63 from Public Health Service, National Institutes of Health *Research Projects Grants Awarded to Foreign Institutions and International Organizations*, Fiscal Years 1962, 1963, 1964. Data for 1964–78 from *NIH Statistical Reference Book of International Activities*.

[2] 15 months (FY 1976 plus Transitional Quarter (TQ)).

ment." The United States resolution as amended and adopted by the Interim Commission, stated for the record the Interim Commission's "belief that there are dangers inherent in over-centralization and regimentation of scientific research." (*18*)

Throughout the years WHO has studied, analyzed and debated what its role should be in research. The official records are revealing. In WHO's 32 years of existence, 47 resolutions and decisions were taken by the World Health Assembly and the Executive Board on the general principles which should govern research promotion and development. In addition, there were resolutions and decisions concerned with budgets for specific research subjects and projects.

Often the same questions have been raised repeatedly. What *should* WHO do? What *can* WHO do to encourage and ensure that national institutions have an effective function both independ-

Table 51.—World Health Organization Voluntary Fund for Health Promotion Cumulative Contributions from Members and Other Contributors as at December 31, 1977 in Thousands of Dollars

Donor	Total Received 1960–12/31/77	%
Members:		
Sweden	$52,232	(53)
U.S.A.	42,155	
Denmark	15,986	
Norway	9,517	
Canada	9,341	
Saudi Arabia	5,247	
USSR	3,744	
Netherlands	3,675	
	141,897	80
Other Members	19,032	11
Total All Members	160,929	
Total Other Contributors [1]	16,905	9
Total Voluntary Fund for Health Promotion	$177,834	

[1] Other Contributors:

Japan Shipbuilding Industry Foundation (Sasakawa Health Fund)	$5,334
United Nations Fund for Population Activities	1,200
International Development and Research Center, Ottawa	1,092
Ford Foundation, U.S.A.	1,063
Other	8,216

Based on: World Health Organization, Executive Board, Sixty-third Session, Programme Committee of the Executive Board, Provisional Agenda, item 8, Annex 1, p. 7-14.

ently and collaboratively? What are WHO priority areas? How should WHO be organized to perform the functions that are decided upon—and what resources are needed and who should provide them? Throughout the years there has been the recurring question of where to conduct research—in the country with the health problem or in the laboratories most prepared to perform this research—the latter usually located in developed countries.

Table 53 gives, in abbreviated form, a chronology and the highlights of the WHO efforts to define its role. The deliberations have been repetitive and have come almost full circle to the original discussions. The most recent concern not only the principles governing WHO's overall role but also a specialized program in tropical

Table 52.—World Health Organization Voluntary Fund for Health Promotion—Summary of Contributions by Special Account as at December 31, 1977 in U.S. Dollars

Special Account	Total Cumulative 12/31/77	U.S. Government Cumulative	
		$	%
Medical Research:			
Unspecified	$2,034,122	$2,000,000	98
Specified:			
Human reproduction	52,493,697	—	—
Other specified activities	20,214,158	12,121,661	60
Research and training in tropical diseases	13,487,141	25,000	.19
Community water supply	1,040,338	875,000	84
Malaria	24,467,036	18,174,995	74
Smallpox eradication	34,625,632	6,098,308	18
Leprosy program	3,626,602	—	—
Yaws program	75,724	—	—
Cholera program	2,144,592	491,374	23
Assistance to Zaire	342,680	—	—
Disasters and natural catastrophes	503,023	—	—
Expanded program on immunization	1,306,415	—	—
Assistance to the least developed among developing countries	5,604,139	—	—
Miscellaneous designated contributions:			
Prevention of blindness	18,303	—	—
Special assistance to Democratic Kampuchea, Lao People's Democratic Republic and Vietnam	2,621,514	—	—
Other designated activities	13,157,833	2,368,781	18
Undesignated	71,602	—	—
Total	$177,834,551	$42,155,119	24

Based on: World Health Organization, Executive Board, Sixty-second Session, Provisional agenda item 11, Appendix 1, 5 May 1978.

Table 53.—Chronology and Highlights of World Health Organization Resolutions on Its Role in Research (World Health Assembly and Executive Board)

1949	Perform research. Coordinate research. Support initial research in existing institutions.
1951	National research centers encouraged. WHO international research laboratory, a potential. WHO policy review requested.
1954	Public health research. Coordinate basic health research. Shortage—medical personnel. Costly—personnel, equipment. WHO—grants to national and local institutions.
1958	U.S. proposal and funding for study of intensified research programs: Laboratory networks, gaps. Standardization. Communication needs, facilities, equipment. Training, congresses, advice. Special account for research requested. Requested study of WHO role and plan.
1959	Advisory Committee on Medical Research established. Special Account for Medical Research established. Funding from regular budget.
1960	Recommends governments emphasize basic sciences and training. Priorities for research in WHO program activities. Intensified program 1960–61.
1962	Training of research workers needed. Research in major public health fields.
1963	Emphasized world-wide importance of medical research. Plea for voluntary contributions.
1964	Promote research in major public health fields. World Health Research Center debate and study.
1965	World Health Research Center, further study for financing and organization. Develop: WHO research and services in epidemiology. Application of communications science. System of reference centers for health research. Study further WHO research role: Facilitate intensification of national, regional research on specific problems.
1966	Implementation of research in epidemiology. Application of communications science to medical and public health problems.
1967–71	No resolutions.

Table 53.—Chronology and Highlights of World Health Organization Resolutions on Its Role in Research (World Health Assembly and Executive Board)—Continued

1972	Intensify WHO activities. Identification and development of most promising fields. Develop international cooperation; standardization of research techniques; standardization of nomenclature and terminology. Coordination of research institutions. Information collection and transmission. Access to training in research methods. Requested preparation of proposals for long-term WHO biomedical research activities.
1973	Continue study on biomedical research and coordination. Emphasize operations research technology, epidemiological and communications science re health delivery systems.
1974	Reaffirms research for problem solving. Increase coordination of research and information activities through national medical research councils. Promote, initiate, strengthen research and training in developing countries, particularly parasitic, infectious and other endemic diseases. Greater involvement of Regional Offices in research. Requests for voluntary contributions.
1975	Call for long-range program on development and coordination of biomedical research. Expand and intensify Special Program for Research and Training in Tropical Diseases. Intensity coordination in environmental health, cancer, cardiovascular diseases, virus diseases and between and among national research institutes. Review network reference and research centers. Enhance role of Advisory Committee on Medical Research. Intensify analyses of biomedical research forecasts and prognosis.
1976	Need for long-term program in health services research/biomedical research. Invites analysis of WHO's research coordinating activities. Balance strengthening of existing institutions and establishing new centers.
1977	Endorses policy: Strengthen national, emphasize regional, promote international. Regions to set research goals and priorities. Biomedical and health services research in balance to solve major health problems. Strengthen development and coordination mechanisms: Global, regional, national. Biomedical and health services research. Initiate studies and award fellowships on traditional and modern medicine. Urge governments to use traditional medicine as appropriate in national health systems. Increase technical cooperation.

Table 53.—Chronology and Highlights of World Health Organization Resolutions on Its Role in Research (World Health Assembly and Executive Board)—Continued

1977	Increase number of collaborating centers. Requests long-term program in development and coordination of biomedical and health services research.
1978	Endorses research and training. Health services research/national and regional. Priorities.
1979	Urge governments: To emphasize in collaboration with WHO, relevant research and establish national research coordinating focal points. Intensify technical cooperation. Use WHO's coordination mechanisms. Expand participation in WHO-coordinated research.
	Requests contribution to WHO-coordinated research.
	Requests WHO accelerate activities to: Strengthen institutions, train national scientists. Support national research activities re methodologies in health services research, research input, planning programs, coordinating, evaluating and application. Facilitate international collaboration in research transcending national and regional boundaries. Finalize WHO medium-term research program and development efforts. Strengthen ACMR coordination role.

disease research. Some description of the debates and actions of the WHA is worth detailing to provide a flavor of the nature of the setting, the substance, and the time required to proceed from concept to action within an international intergovernmental organization.

The June 1949 definition of WHO's role in research adopted by the Second World Health Assembly has been reviewed and approved periodically. WHO recognized formally the need and importance of research and its application. WHO would perform research, coordinate research, and support research activities in existing institutions and in local institutions which would assume responsibility after a period of time. WHO went on record that it would not at that time establish international research institutions under its auspices. The possibility of "peer" communication between national research centers was raised in 1951, and was apparently prompted by discussions within the Committee on Program.

It was six years after the initial 1949 statement on research that the shortage of highly-trained medical research personnel as well as the high cost of personnel and equipment received official attention. It was also the first formal indication that WHO might, under exceptional circumstances, "implement research programs itself by consequence of its projects." Cooperation between member states and WHO was continually urged. The issue of international research laboratories was raised with some regularity.

In June 1958 the WHO celebrated its tenth anniversary at the World Health Assembly held in the United States. The United States offered to make a special grant of $300,000 to WHO to conduct a study which would provide a plan for an intensified research program. The working paper of the United States Delegation indicated that "It is the present intent of the United States Government to provide substantial support to any sound programme that may emerge from the proposed study, subject to participation by a number of other Member States." (*19*) Reference

Some of the public health experts who participated in the work of the Technical Preparatory Committee in 1946 prior to the International Health Conference which took place in New York City the same year and who attended the Eleventh World Health Assembly in Minneapolis on the occasion of the decennial anniversary of the World Health Organization (1958). Front row, left to right, **Mr. A. Zarb (in 1946 from the Office International d'Hygiène Publique, Paris); Dr. C. Mani (India); Dr. J. A. Doull and Dr. H. van Zile Hyde (U.S.); Dr. A. Shoasha (League of Arab States);** back row, **Dr. K. Evang (Norway); Miss Marjorie Wheidon, Dr. H. B. Calderwood (U.S.); Dr. Szeming Sze (China). (Courtesy of Dr. Henry van Zile Hyde)**

Three former Surgeons General of the Public Health Service were members of the United States Delegation to the 10th Anniversary Commemorative Session of the World Health Organization in Minneapolis, Minn., May 26–28, 1958. Left to right: **Dr. Leonard A. Scheele, Dr. Thomas Parran, Dr. Leroy E. Burney. Dr. Burney, Chief of the U.S. Delegation to the Eleventh World Health Assembly, was elected President of the Assembly. Dr. Scheele had served as President and Dr. Parran was one of the signers of the original WHO charter. (Courtesy of the World Health Organization)**

was also made to the fact that simultaneous to the WHA sessions, the Senate Foreign Relations Committee proposed amending the Mutual Security Act which provides for United States participation in WHO. The Amendment was adopted as follows:

> SEC. 6 The Congress of the United States, recognizing that the diseases of mankind, because of their widespread prevalence, debilitating effects, and heavy toll in human life, constitute a major deterrent to the efforts of many peoples to develop their economic resources, and productive capacities, and to improve their living conditions, declares it to be the policy of the United States to continue and strengthen mutual efforts among the nations for research against diseases such as heart disease and cancer. In furtherance of this policy, the Congress invites the World Health Organization to initiate studies looking toward the

> strengthening of research and related programs against these and other diseases common to mankind or unique to individual regions of the globe.

Dr. Hyde introduced the United States working paper and explained that the United States proposal was for a study and not for a program. He commented on WHO's effectiveness in its coordination of research in the influenza epidemic.

The specifics of the United States paper suggested that, within its policy, WHO could well expand its role in research, through:

> (1) co-ordination of research on an international scale through integrated laboratory networks; (2) identification and definition of gap areas in medical and public health research; (3) standardization of scientific terminology and methods; (4) facilitation of communication between scientists and research institutions; (5) determination of unmet requirements for facilities and equipment; (6) training of research personnel; (7) promotion and support of scientific congresses, seminars, and other meetings of medical scientists; (8) stimulation and advice to national and international official and voluntary agencies in the research area. (*20*)

Dr. Hyde suggested that a small staff of highly-experienced medical research administrators work with expert committees or with counterparts in various countries, nongovernmental organizations, and agencies. They could explore the field and prepare a plan for the World Health Assembly.

The Director General viewed WHO's ten years of work as stimulating certain types of research without establishing a significant WHO program. He emphasized the importance of work by national research organizations, and his view was that the United States offer should stimulate national governments to carry on more coordinated research in medicine and related fields. WHO would then have an opportunity to analyze its problems and determine how to stimulate research in that direction.

The Assembly accepted the United States initiative and its funds and stated that WHO could expand its role in research. It requested the Director General to (1) organize and arrange for a special study of WHO's role on research, and (2) prepare on the basis of this study a plan with cost estimates for transmission to the Twenty-Third Session of the Executive Board and the Twelfth World Health Assembly.

May 1959 saw an approval in principle of the plan of research proposed for the initial year 1960, and an Advisory Committee on

Medical Research was established. Training of professionals in basic medical sciences received some emphasis. The priorities and plans developed by the Director General, with the assistance of the Advisory Committee on Medical Research, were to be reported at the Twenty-Fifth Session of the Executive Board. Medical research would be included in the regular budget of 1960 with a maximum of $500,000 (Table 54). This regular budget was to be supplemented by the establishment of a Special Account for Voluntary Contributions for Medical Research. Special pleas for contributions to this fund continued through the years.

In 1963, a proposal for establishing a World Health Research Center was debated, studied, and debated again for the next several years. A more specific resolution resulting from an initiative by the French government was passed in March 1964 to create an International Agency for Research on Cancer.

International Agency for Research on Cancer (IARC)

In 1963 General deGaulle recommended that the USA, the USSR, France, and Great Britain allocate half of one percent of their defense budgets to research on cancer. In 1964 the World Health Assembly authorized the Director General (WHA 17.49) to review with the countries concerned the establishment of a World Research Agency for Cancer. (*21*) Discussions were also held with the International Union Against Cancer; and in 1965 the WHA decided to establish the International Agency for Research on Cancer with West Germany, France, Italy, the United Kingdom, and the United States as the founding members, and WHO ap-

Table 54.—World Health Organization Support of Medical Research—Estimated Expenditures (1960, 1961)

	1960		1961	
	Regular Budget	Special	Regular Budget	Special
Program Activities	$478,780	$1,246,275	$712,695	$1,993,116
Other Statutory Staff	21,220	10,325	37,305	5,574
	$500,000	$1,256,600	$750,000	$1,998,690
Overall Total	$1,756,600		$2,748,690	

Based on: World Health Organization, *Official Records No. 100, Executive Board Twenty-fifth Session, Geneva 19 January–1 February 1960* (Geneva: World Health Organization, 1960), p. 132.

proved the statutes. (22) Article 1 of the Statutes of the IARC states that "The objective of the International Agency for Research on Cancer shall be to promote international collaboration in cancer research. The Agency shall serve as a means through which Participating States and the World Health Organization, in liaison with the International Union against Cancer and other interested international organizations, may co-operate in the stimulation and support of all phases of research related to the problem of cancer."

The IARC works within the framework of the WHO. The original proposal for a budget based on a percentage of the defense budgets of the participating countries was changed to a fixed amount to be paid by each participating state. For the first five years this was $150,000 each with additional funds coming from grants or special contributions. Initially, IARC was to concentrate on those fields which require international collaboration for the development of knowledge. Accordingly, the epidemiology of cancer and the training of research workers were to be two main functions. This reserved to WHO the field of cancer control and clinical aspects. The IARC had three regional centers in 1970 at Nairobi, Singapore, and Jamaica. A number of research agreements have been signed with various institutions.

The Director of IARC is Dr. J. Higginson, and the headquarters are at Lyon, France. As of June 1978, the Agency's staff was 152, consisting of 32 scientists, 56 technicians, and 64 administrative/secretarial personnel. There were 17 visiting scientists, consultants, and fellows who participated in the research programs of the IARC. During 1978 IARC's income was $6.98 million. Of this, $4.8 million or 69% came from the contributions of the participating states; and $2.2 million or 31% from grants and contracts. Of these funds, 70% were spent on the IARC internal activities and functions and 30% on contracts for research fellowships and travel programs. The scientific program is concerned with epidemiology and biostatistics, environmental carcinogens, biological carcinogenesis, chemical carcinogenesis, and research training. (23)

World Health Research Center

The larger issue of a World Health Research Center still remained unresolved in 1964. The Director General, Dr. Candau, commented on the proposal for the establishment of the World Health Research Center which had been transmitted by the Executive Board for the WHA's information and comment. He emphasized that "a World Health Research Centre could provide facilities for research far beyond the possibilities of any single country, or group of countries." He indicated that functions in epidemiology and communications science and technology could be performed only at the level of an international organization. The Center would be a centralized effort but would also collaborate with national and other research laboratories as part of a network development. With responsibility for long-range and changing problems, the Center would represent a permanent element within a dynamic world. (*24*)

The discussion in the Committee on Program and Budget was initiated by Dr. Karl Evang, Director-General of Health Services of Norway, who introduced a draft resolution submitted by Czechoslovakia, Iran, Norway, Pakistan, Poland, and Sweden, which suggested the Director General continue studies on this project. Representatives from The Netherlands, Peru, Iran, Poland, Iraq, Kuwait, France, Belgium, United States, USSR, Czechoslovakia, Cuba, Argentina, Pakistan, India, Canada, Australia, Burundi, Japan, Hungary, Turkey, United Kingdom, Italy, Switzerland, Yugoslavia, United Arab Republic, Chile, Lebanon, Republic of Vietnam, Thailand, and Finland participated in the discussions. The result was a resolution requesting the Director General to continue the study and report subsequently to the Executive Board and the WHA.

In his report to the 1965 World Health Assembly, Dr. Candau stated that "The extensive research work WHO has been sponsoring since 1959, in order to be most profitable, must now be accompanied by intensified research in carefully selected areas of epidemiology, communications science and biomedicine where a basic lack of knowledge continues to hamper, if not actually block, further progress." Dr. Candau suggested that this intensified research on major health problems would be performed in a World Health Research Center to complement national activity. One of its first responsibilities would be international monitoring which could solve health problems of immediate and vital concern to the developing nations and which could increase the knowledge of effects of pharmaceutical products. This would then form the basis of a universal surveillance system on communicable diseases. Dr. Candau referred to the creation of this proposed center as a "logical and unavoidable step in the evolution of WHO." (*25*)

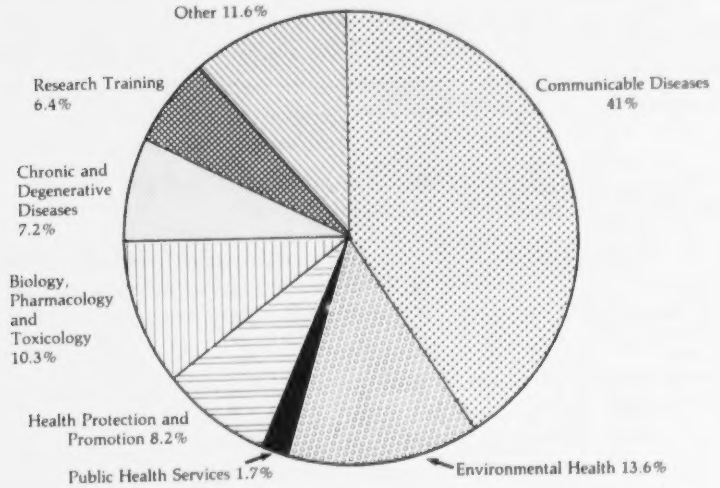
The proposal again received great attention, extensive discussion, and no decision other than one recommending further study. In the Committee on Program and Budget, 37 member country representatives participated in this debate. Twelve were in favor of the World Health Research Center: Czechoslovakia (with an offer of facilities), Yugoslavia, Syria, Costa Rica, Lebanon, Nigeria, Ceylon, Portugal, Peru, Ghana, Trinidad/Tobago, and Norway. Twenty were opposed, five recommended further study. The opposition was an interesting mixture about evenly divided between the developing countries and those countries with extensive research programs. The developed countries' opposition was for both scientific and fiscal reasons. Research should be executed where it can best be conducted and it might be either centralized or decentralized. Further, the proposal called for approximately $144 million over a ten-year period which would have to come from funding outside the regular budget. The comments of representatives of developing countries were direct; they were faced with many high priority basic health problems which currently could not be funded under the WHO regular budget. They believed that the World Health Research Center should not be considered or encouraged at that time.

The United States did not support the Director General's proposal as presented, but encouraged "the development of a worldwide health communications service as an integral part of WHO, building as appropriate upon existing facilities, and we offer the United States National Library of Medicine in Bethesda, Maryland, as a major facility for this programme." (*26*)

From these deliberations came a WHA resolution which requested the Director General to develop initially basic staff services in fields of communication, technology and epidemiology which would be financed from the WHO Regular Budget as a substitution for creating a separate World Health Research Center. These actions combined with a system of reference centers would be the next step for extending WHO activities in health research. Study should continue, however, of the WHO role in promoting medical research. (*27*)

After ten years of this "intensified medical research program" (1958–68) WHO had 686 contracts for 711 collaborative research projects, and 69 grants to individual investigators for a total of 740 investigators in 430 institutions in 77 countries. (*28*) From 1961–67, 41% of the funds were for research in communicable diseases and 1.7% for research in public health services (Figure 7). Seventy-five percent of the research contracts were for less than $2,000, and the remainder were rather small. Rutherford M. Poats commented on this fragmentation and the difficulty of coordinating communicable disease research with hundreds of participating institutions. He suggested that information exchange and the estab-

Figure 7. WHO Medical Research Program: Distribution of research funds by subject (1961–1967).



COMMUNICABLE DISEASES	Malaria, Tuberculosis, Venereal Diseases and Treponematoses, Bacterial Diseases, Parasitic Diseases, Virus Diseases, Smallpox, Leprosy, Veterinary Public Health, Communicable Diseases—General Activities
ENVIRONMENTAL HEALTH	Wastes Disposal, Environmental Pollution, Sanitation Services and Housing, Community Water Supply, Vector Biology and Control
PUBLIC HEALTH SERVICES	Health Laboratory Services, National Health Planning, Organization of Medical Care, Nursing, Health Education
HEALTH PROTECTION AND PROMOTION	Dental Health, Social and Occupational Health, Maternal and Child Health, Mental Health, Nutrition, Radiation Health
BIOLOGY, PHARMACOLOGY AND TOXICOLOGY	Biological Standardization, Immunology, Pharmaceuticals, Pharmacology and Toxicology, Human Genetics, Human Reproduction, Food Additives
CHRONIC AND DEGENERATIVE DISEASES	Cancer, Cardiovascular Diseases, Chronic Non-communicable Diseases
RESEARCH TRAINING	Research Training Grants and Grants for Exchange of Research Workers
OTHER	Research Co-ordination, Epidemiology and Communications Science, Grants to Individual Investigators

Source: *WHO Medical Research Programme 1964–68* page 8.

lishment of some standards in the grant review process would be the most that could be accomplished. (*29*) By 1968, there were 168 WHO Reference Centers, 94 of which were international and 74 regional. The geographic distribution of the 168 Centers by WHO regions is given in Table 55, and the distribution by subject field in Table 56.

Table 55.—World Health Organization International and Regional Reference Centers by Region (1968)

Region	International	Regional	Total
Africa	2	8	10
The Americas	29	16	45
South East Asia	3	2	5
Europe	57	32	89
Eastern Mediterranean	1	4	5
Western Pacific	2	12	14
Total	94	74	168

Based on: World Health Organization, *The Medical Research Programme of the World Health Organization 1964–1968 Report by the Director-General* (Geneva: World Health Organization, 1969).

Table 56.—World Health Organization International and Regional Reference Centers by Subject (1968)

Bacterial Diseases	9
Biology, Pharmacology and Toxicology	26
Chronic and Degenerative Diseases	24
Environmental Health	3
Leprosy	1
Malaria	5
Mental Health	5
Nutrition	3
Parasitic Diseases	3
Radiation Health	2
Tuberculosis	3
Vector Biology and Control	10
Venereal Diseases and Treponematoses	5
Virus Diseases	33
Vital and Health Statistics	4
Zoonoses	27
Other Fields	5
Total	168

Based on: World Health Organization, *The Medical Research Programme of the World Health Organization 1964–1968 Report by the Director-General* (Geneva: World Health Organization, 1969).

The periodic examination by the World Health Assembly of WHO's coordinating role occurred again in 1972. Major objectives were to:

1. Develop and elaborate (a) Opportunities and methods for international cooperation. (b) Identification of research techniques. (c) Identification of nomenclatures and terminology.
2. Identify fields of biology and medical sciences which presented the greatest opportunity for advancement.
3. Coordinate efforts of research institutions in member countries which would provide facilities and manpower for collaborative work on priority problems.
4. Facilitate information collection and transmission of the use of scientific advances in health programs.
5. Assist countries in obtaining assistance for research training.

These did not present innovative ideas or mechanisms for execution. Once again the Assembly requested the Director General to prepare proposals for long-range WHO activities in biomedical research. In particular, it reviewed the report on research in epidemiology and communication science. This study of WHO's role in the development and coordination of biomedical research was continued through 1973.

The May 1974 resolution of the World Health Assembly reaffirmed its recognition of the importance of biomedical research and the gains which could be directed toward solving practical health problems for both economically developed and developing countries. A more significant role for the developing countries was contemplated.

The World Health Assembly endorsed proposals submitted for WHO activities with particular reference to:

1. Increase international cooperation and coordination and exchange of research information by WHO through medical research councils and other national bodies.
2. Promote, initiate, and strengthen research and training in developing countries, particularly with respect to disease problems important to the areas, such as parasitic infections and other endemic diseases.

The Assembly recommended greater involvement in regional research. Financial support was sought for the voluntary funding of research.

The 28th World Health Assembly in 1975 reviewed the Director General's report on WHO's work to develop and coordinate biomedical research. The Assembly requested the Director General to accelerate work on formulating a comprehensive long-term WHO program to:

1. Identify scientific problems whose solution is important to WHO and where it is likely that progress can be made. This would take into account the recommendations of the Advisory Committee on Medical Research.
2. Expand and intensify the special program for research and training in tropical and parasitic diseases.
3. Intensify activities for coordination of research in environmental health, cardiovascular diseases, viral diseases, and other priority areas.
4. Complete review of the network of reference and research centers collaborating with WHO. This would evaluate past work and discuss future roles.
5. Extend cooperation among and coordination between national research institutes in countries which are ready to provide facilities and manpower to collaborate on problems of prime importance to WHO.
6. Enhance the role of the Advisory Committee on Medical Research for formulating and evaluating WHO's long-term research program and improve its utilization of expert committees.
7. Encourage regional committees and offices to implement appropriate programs of biomedical research.
8. Establish or maintain close contacts with national and international bodies dealing with similar programs.
9. Request the Director General to intensify ongoing correlations and analysis of long-term biomedical research forecasts and prognoses.

WHO also passed a resolution concerning its role in the development and coordination of research in tropical diseases. It approved the Executive Board's endorsement of steps to develop the Special Program for Research and Training in Tropical Diseases and to implement other mechanisms for the promotion and coordination of biomedical research. It noted the progress in forming task forces for the promotion of research.

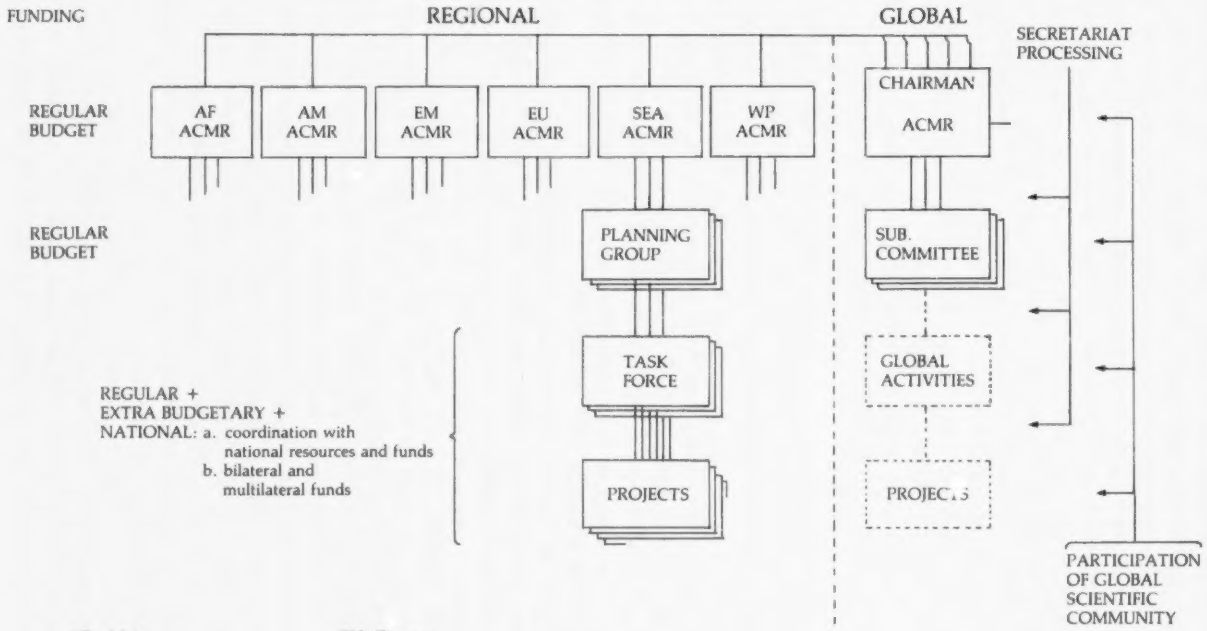
Once again, in 1976, the World Health Assembly confirmed the need to draw up a comprehensive long-term program for the development and coordination of biomedical and health services research. Such a plan would reflect WHO's concern for defining priorities in scientific and organizational research and also for methodology, coordination of international research programs, improvement of research information systems, a review of the system of collaborating centers, and the collation of scientific biomedical and organizational forecasts. The Director General was invited to prepare a comprehensive review containing an analysis and evaluation of WHO's research coordinating activities, including a report on the implementation of relevant Executive Board and WHA resolutions, and proposals for further improvements and for the formulation of WHO research opportunities.

The WHA requested that the Director General keep a reasonable balance between strengthening existing research institutions and establishing new centers. The latter were to be considered only in exceptional cases where no host institution existed capable of carrying out the projected projects. The World Health Assembly also took action on intensifying research on parasitic and other communicable and tropical diseases. It requested the Director General to enlarge the network of WHO national scientific collaborating centers and institutions, and to establish contacts with universities, appropriate research institutions, and pharmaceutical firms to develop new methods of controlling tropical diseases and new preventive and therapeutic substances.

The gap in health between the developed and the developing countries precipitated a confrontation during the Twenty-ninth World Health Assembly in 1976. A resolution was passed directing the Director General to reorient WHO to allocate at least 60% of the 1980 Regular Program Budget in real terms toward technical cooperation and services for the developing countries. This was to be accomplished by reducing expenditures and administration both at headquarters and the regional offices, streamlining the professional and administrative cadres, phasing out projects, and making optimal use of technical and administrative resources available in individual developing countries. A report was to be submitted to the Thirtieth World Health Assembly. The proposed program budget for 1978–79 reflects this resolution to some extent with an increase of $5 million for development within the General Management and Coordination category.

A schema of WHO's advisory and operating mechanisms for scientific research is given in Figure 8. The WHO Special Program of Research Development and Research Training in Human Reproduction was initiated in 1972 and has had sustaining support from

Figure 8. Outline of WHO's advisory and operating mechanisms for scientific research (1978). (Courtesy of Prof. Sune Bergstrom)



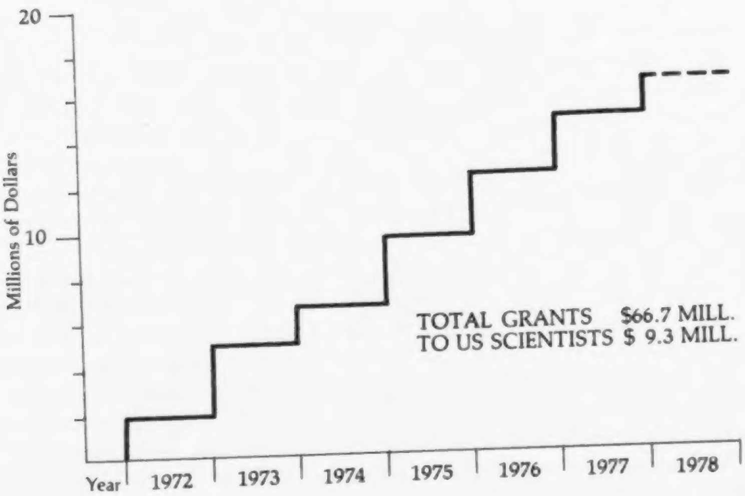
AF: Africa
AM: The Americas
EM: Eastern Mediterranean
EU: Europe
SEA: South-East Asia
WP: Western Pacific

Sweden since that time. According to Professor Sune Bergstrom, approximately 650 scientists are directly involved from 62 countries, of which 34 are classified as developing. Of these, 90 are United States scientists. There are 21 collaborating centers for clinical research; 6 for research and training; and 12 task forces. The total number of grants have accounted for $66.7 million (Figure 9). Figure 10 shows the funds provided for research from the regular budget, the Voluntary Fund, and those of the Voluntary Fund which are devoted to the Special Programs for Human Reproduction and for Tropical Diseases. According to WHO estimates, these research funds amount to about $0.01 per individual on a global basis and $5 to $10 per individual in industrialized countries.

Special Program for Research and Training in Tropical Diseases

The Special Program for Research and Training in Tropical Diseases was begun in 1976 as a concerted effort to control six major tropical diseases: malaria, schistosomiasis; filariasis, including onchocerciasis; trypanosomiasis (including African Sleeping Sickness and Chagas' disease); leprosy; and leishmaniasis. Selection of these

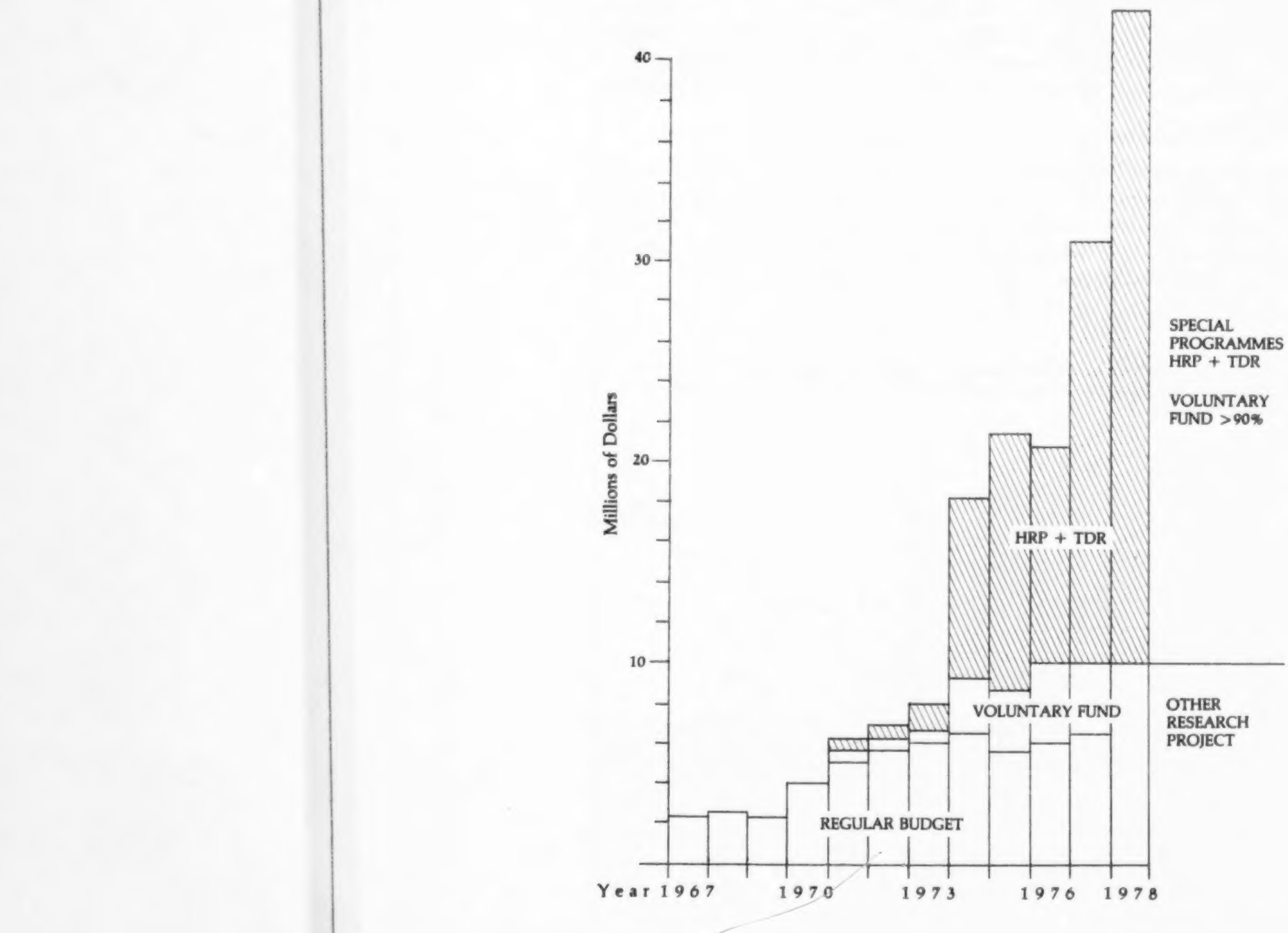
Figure 9. Funding of WHO Special Program of Research, Development and Research Training in Human Reproduction (1972–1978). (Courtesy of Prof. Sune Bergstrom)



diseases was based on the devastating impact of these diseases on public health, the current lack of tools for their control, and the research potential to produce new tools.

Included is the development of preventive, diagnostic, therapeutic and vector control methods to prevent, treat, and control tropi-

Figure 10. WHO Funding for research from Regular Budget and Voluntary Fund. (Courtesy of Prof. Sune Bergstrom)



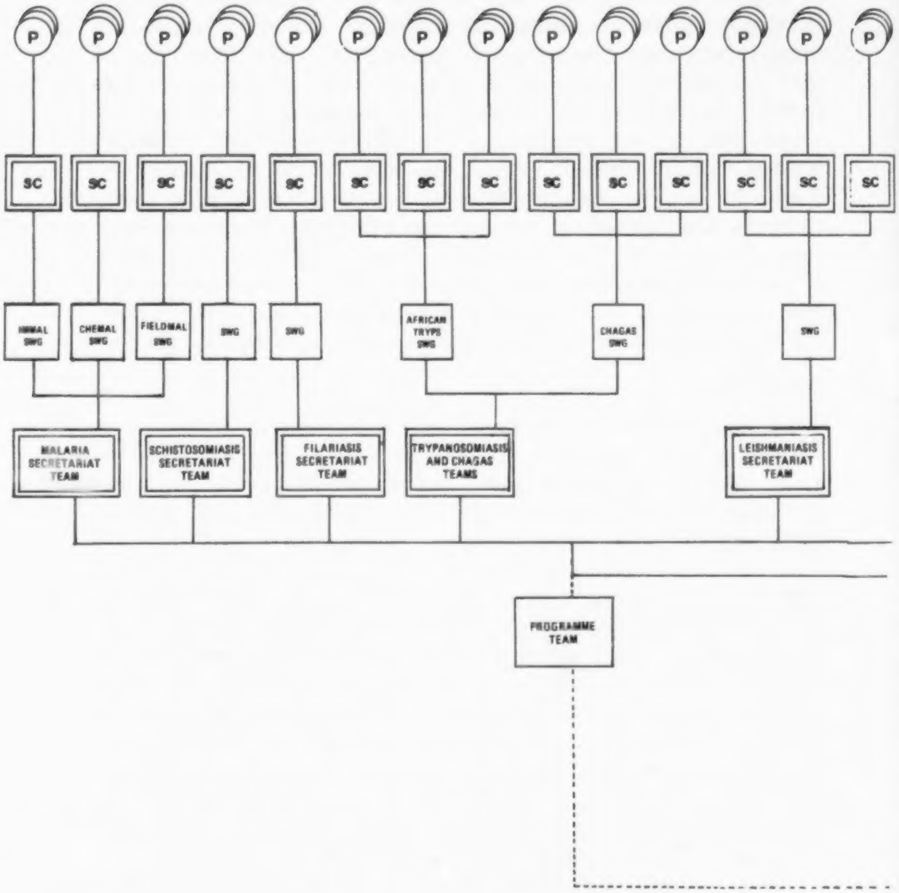
cal diseases in the countries most affected. These new methods should be at a cost which a developing country can tolerate and be applied easily with a minimum of skills or specialized supervision. Integration of these methods into existing health services and into the primary health care systems is also a prerequisite. It is intended that the countries where the diseases are endemic will be the sites for the specification, development and testing of new tools. Research will be on chemotherapy and chemoprophylaxis; immunotherapy and immunoprophylaxis; biological control of vectors; and diagnostic aspects, especially immunodiagnosis. It will be necessary to strengthen biomedical research capabilities in developing countries by training in the biomedical sciences and by various forms of institutional support. Thus, there is a dual emphasis on research and development for new and improved tools and on strengthening the biomedical research capability of tropical countries.

Management

The Special Program for Research and Training in Tropical Diseases has three cosponsors: the United Nations Development Program (UNDP), the World Bank, and the World Health Organization. The Executing Agency is the WHO. Associated with the program are numerous administrative, programmatic, and technical structures, internal and external to WHO. They are at the global and regional levels and include the WHO/Geneva Special Program for Research and Training in Tropical Diseases; the Global Advisory Committee for Medical Research and its Subcommittees; the Regional Advisory Committees on Medical Research with their planning groups and task forces; a Joint Coordinating Board; a Standing Committee; a Scientific and Technical Advisory Committee: Scientific Working Groups; a Research Strengthening Group; and various Secretariats. A schema of the organization of the UNDP/World Bank/WHO Special Program for Research and Training in Tropical Diseases is given in Figure 11.

There are multidisciplinary groups of scientists with a defined research goal in each one of the six tropical disease areas. The Scientific and Technical Advisory Committee (STAC) has a membership of 15 to 18 scientists who serve in a personal capacity and are experts in various disciplines. The STAC reviews scientific and technical content, recommends priorities, and the establishment and disestablishment of Scientific Working Groups, and is responsible for a continuous independent scientific and technical evaluation of the Special Program. STAC provides a report annually to the Exe-

Figure 11. UNDP/WORLD BANK/WHO Special Program for Research and Training

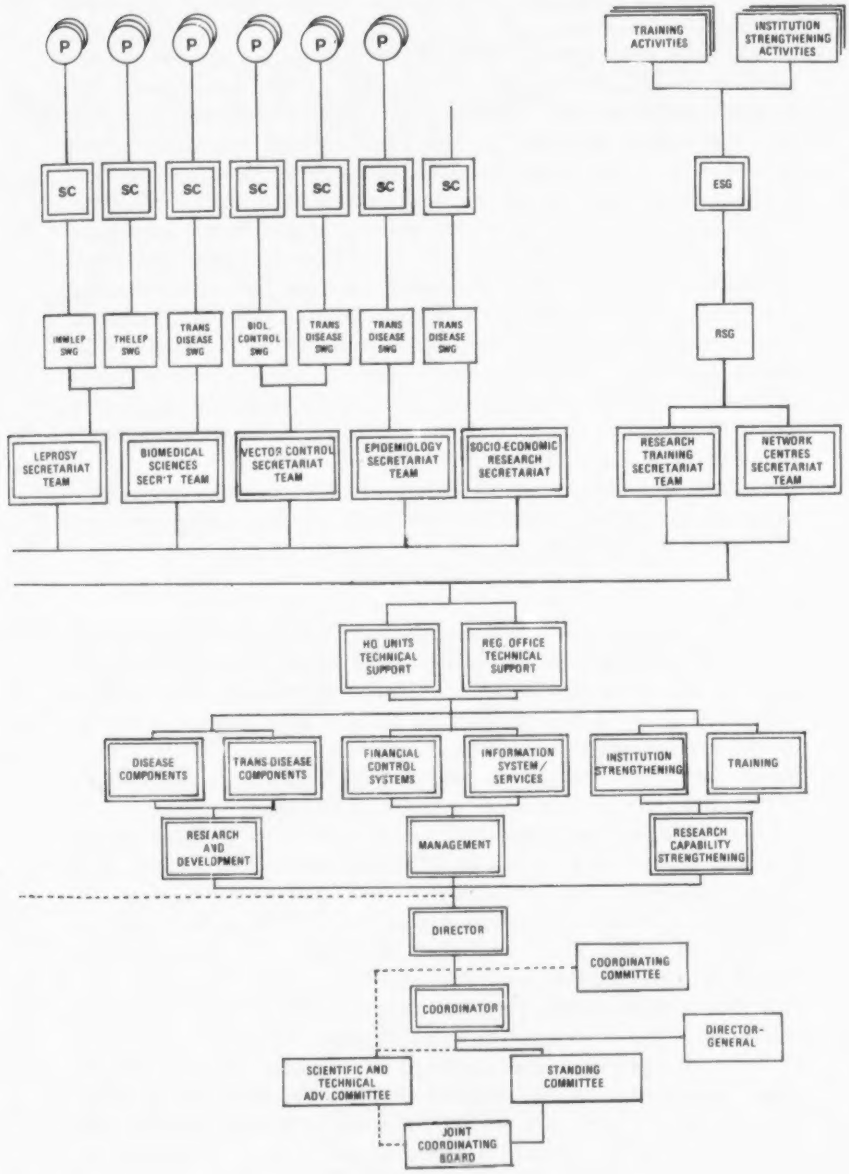


• LEGEND

- - - -	ADVISORY FUNCTIONS
———	DIRECT OPERATIONAL RELATIONSHIPS
SWG	SCIENTIFIC WORKING GROUP
SC	STEERING COMMITTEE
RSG	RESEARCH STRENGTHENING GROUP
ESG	EXECUTIVE SUB-GROUP
P	PROJECTS (COUNTRY LEVEL)
▢	ASSIGNMENTS OF SPECIAL PROGRAMME STAFF

Source: World Health Organization TDR/AR(2)/78.2

in Tropical Diseases, Organization (1978).


P
P
P
P
P
P
TRAINING ACTIVITIES
INSTITUTION STRENGTHENING ACTIVITIES
SC
SC
SC
SC
SC
SC
SC
ESG
IMMLEP SWG
THELEP SWG
TRANS DISEASE SWG
BIOL CONTROL SWG
TRANS DISEASE SWG
TRANS DISEASE SWG
TRANS DISEASE SWG
RSG
LEPROSY SECRETARIAT TEAM
BIOMEDICAL SCIENCES SECR'T TEAM
VECTOR CONTROL SECRETARIAT TEAM
EPIDEMIOLOGY SECRETARIAT TEAM
SOCIO-ECONOMIC RESEARCH SECRETARIAT
RESEARCH TRAINING SECRETARIAT TEAM
NETWORK CENTRES SECRETARIAT TEAM
HQ UNITS TECHNICAL SUPPORT
REG. OFFICE TECHNICAL SUPPORT
DISEASE COMPONENTS
TRANS-DISEASE COMPONENTS
FINANCIAL CONTROL SYSTEMS
INFORMATION SYSTEM/ SERVICES
INSTITUTION STRENGTHENING
TRAINING
RESEARCH AND DEVELOPMENT
MANAGEMENT
RESEARCH CAPABILITY STRENGTHENING
DIRECTOR
COORDINATING COMMITTEE
COORDINATOR
DIRECTOR-GENERAL
SCIENTIFIC AND TECHNICAL ADV. COMMITTEE
STANDING COMMITTEE
JOINT COORDINATING BOARD

cuting Agency and the Standing Committee. The Executing Agency consists of a Special Program Coordinator who is responsible for the overall management of the Special Program and is appointed by the Director General of WHO.

The Joint Coordinating Board (JCB) reviews reports and recommendations from a Standing Committee of the Cosponsors, the Executing Agency, the Scientific and Technical Advisory Committee, and makes decisions on the planning and execution of the Special Program in terms of budget, allocation of resources between program areas and scientific working groups, and a plan of action.

The Joint Coordinating Board consists of the three cosponsors (UNDP, World Bank, and WHO) and 27 governments and organizations. The countries represented on the Joint Coordinating Board are: Australia, Belgium, Brazil, Burma, Canada, Denmark, Egypt, France, Federal Republic of Germany, India, Liberia, Madagascar, Malaysia, The Netherlands, Nigeria, Norway, Pakistan, the Philippines, Sweden, Switzerland, USSR, United Kingdom, United States of America, and Venezuela. The JCB elected to its membership Austria, Finland, and The Rockefeller Foundation.

The mix of countries on the JCB is an effort to blend the participation of the global scientific community, the developing countries affected by the diseases, and the contributors of resources.

Funding

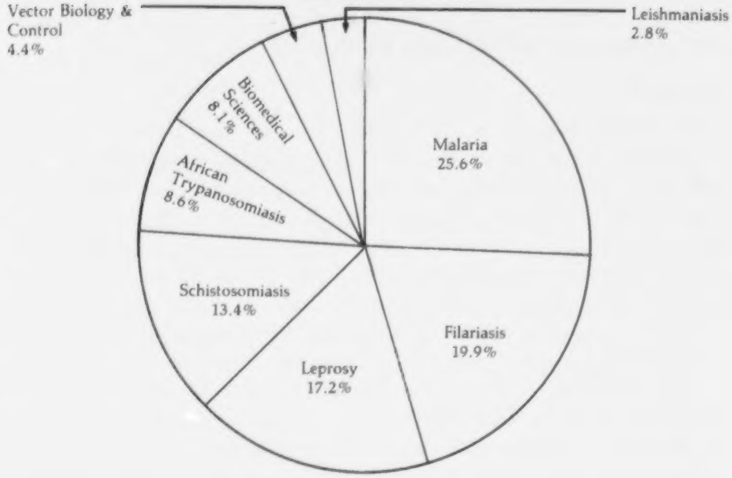
The Special Program for Research and Training in Tropical Diseases will essentially be dependent upon extra budgetary funding, such as the Voluntary Fund for Health Promotion. The United States has pledged $20 million to be provided over a five-year period, even though these diseases are not endemic in the United States. The United States has provided $2.3 million in Fiscal Years 1978 and 1979 and $4 million in Fiscal Year 1980.

From 1975 to June 1978, $9.2 million has been donated to the Special Program for Research and Training in Tropical Diseases for research projects. The distribution of funds among the six diseases, biomedical sciences, and vector biology control is given in Figure 12a and the distribution of projects in Figure 12b. The approved budget is $19.8 million for 1978 and $25 million for 1979. The 1978 distribution of the estimated allocations of funding was $15.2 million or 77% for research and development; $3.6 million or 18% for research capability strengthening; $0.85 million or 4% for program management; $100 thousand or 0.5% for technical administrative bodies (Table 57). Within the research and development

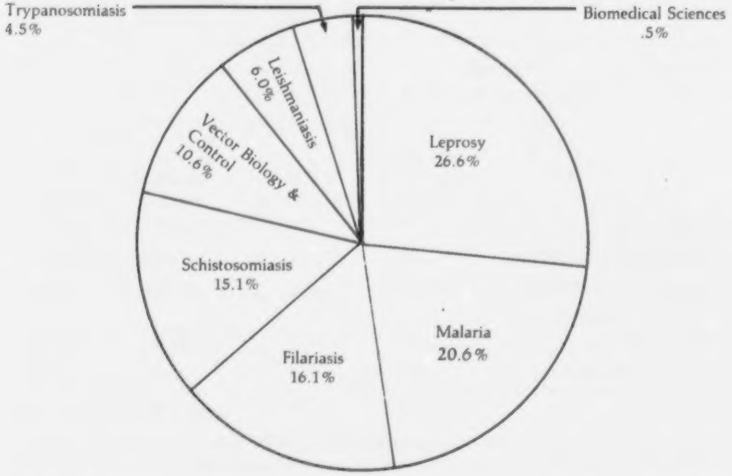
Figure 12. WHO Research and Training in Tropical Diseases (1975–June 1978). a. Distribution of funds by disease; b. Distribution of projects by disease.

Total $9.2 Million

a. Distribution of Funds



b. Distribution of Projects



Based on information from: World Health Organization, Special Programme for Research and Training in Tropical Diseases, *Second Annual Report: Overview* (TDR/AR(2)78.2), p. 21.

(R&D) component, Table 58 shows the allocation of funds to each of the disease categories, planning activities, biomedical sciences, vector biology and control, epidemiology, and socioeconomic research. Malaria represents $3.75 million or 26% of the $14.37 million estimated obligations for R&D; schistosomiasis, $1.75 million or 12%; filariasis, $1.4 million or 9.7%; African trypanosomiasis, $1.76 million or 12%; leprosy, $1.2 million or 8.4%; Chagas' disease and leishmaniasis $0.65 million or 4.5% each.

Activities

Dr. Sune Bergstrom, (*30*) Chairman of the Global Advisory Committee on Medical Research (ACMR) has described its work and that of the Regional Advisory Committees on Medical Research. He views the Regional ACMRs established several years ago as a mechanism to enable the different regions to establish research priorities specific to them. Common to all of the regions, however, is an urgent need for health services research and research in tropical diseases, diarrheal diseases, nutrition, ethics of medical research, and improvement of information transfer.

Approximately 20% of the available funds for tropical disease research has been earmarked to strengthen research capability of developing countries, and more will be allocated to health services research and technology related to the six diseases. There has been

Table 57.—World Health Organization Special Program for Research and Training in Tropical Diseases—Major Program Obligations for 1977 and Estimated Obligations for 1978 (U.S. $1,000)

Major Programs	1977		1978	
	Approved Budget	Total Obligations	Approved Budget	Total Obligations
Technical and Administrative Bodies	85	55	92	100
Research and Development	11,603	4,945	15,244	14,373
Research Capability Strengthening	2,051	871	3,600	3,585
Program Management	598	723	848	1,020
Total	14,337	6,594	19,784	19,078

Based on: World Health Organization, Special Programme for Research and Training in Tropical Diseases, *Second Annual Report: Overview* (TDR/AR(2) 78.2), p. 18.

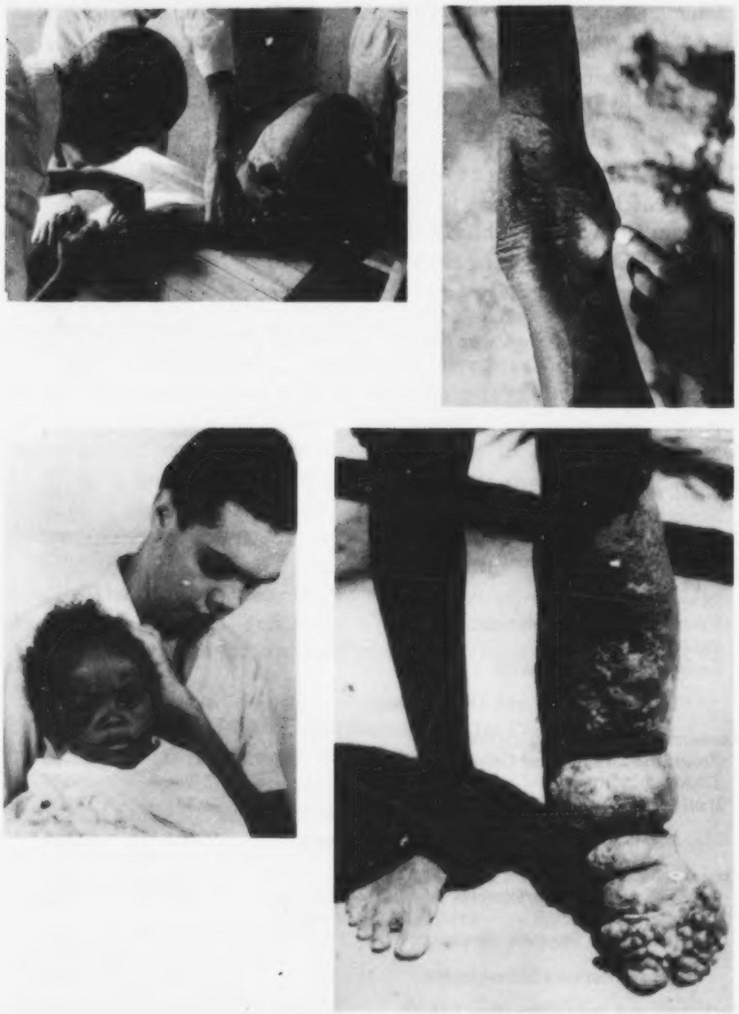
an increase in voluntary contributions for all WHO research from $5 to $30 million. Realistically, however, according to Dr. Bergstrom, $100 million annually is needed in voluntary funds for all programs in research, research training, and institution building.

Table 58.—World Health Organization Special Program for Research and Training in Tropical Diseases—Program Component Obligations for 1977 and Estimated Obligations for 1978 (U.S. $1,000)

Program Components	Total Obligations 1977	Estimated Total Obligations 1978
Research and Development:		
Planning and General Activities	$ 202	$ 930
Malaria	1,337	3,750
Schistosomiasis	822	1,750
Filariasis	999	1,400
African Trypanosomiasis	429	1,755
Chagas' Disease	50	650
Leishmaniasis	51	653
Leprosy	662	1,170
Biomedical Sciences	225	780
Vector Biology & Control	68	800
Epidemiology	64	655
Socio-economic Research	36	80
Total: Research and Development	4,945	14,373
Research Capability Strengthening:		
Program Planning and General Activities	143	460
Training Activities	144	1,125
Institution Strengthening Activities	584	2,000
Total: Research Capability Strengthening	871	3,585
Program Management:		
Office of the Program Director	704	813
Regional Offices[1]	—	—
Administrative Support Services	19	207
Total: Program Management	723	1,020
Technical and Administrative Bodies	55	100
Total: Special Program for Research and Training in Tropical Diseases	$6,594	$19,078

[1] Until 1979 costs for the Regional Offices have been reported under Research Capability Strengthening.

Source: World Health Organization, Special Programme for Research and Training in Tropical Diseases, *Second Annual Report: Overview* (TDR/AR(2) 78.2), p. 19.



Top left, A patient is treated in a Sudanese hospital for sleeping sickness. Top right, **The bites of the simulium flies are the source of infection of onchocerciasis which produces fibrous nodules.** Bottom left, **A doctor examines a young child in Brazil suffering from an acute form of Chagas' Disease. Swollen eyelids are a typical manifestation of an acute infection.** Bottom right, **Two species of filarial worms,** Wuchereria bancrofti **and** Brugia malayi **live in the lymphatic system where they can produce elephantiasis as illustrated in this photograph. (Courtesy of the World Health Organization)**

Left, Distribution of anti-malaria drugs to children by a surveillance worker in the village of Koera, Province of Bihar, India; top right, **these two Filipino boys (one 13 years old, and the other 14) have varying degrees of infection of schistosomiasis. A heavy infection can retard both physical and mental growth of the victim;** bottom right, **a Burmese child is being checked to see if he shows an intensity of the skin typical of leprosy. (Courtesy of the World Health Organization)**

Dr. Bergstrom has considered scientific information an essential function in developing the medical research programs. The ACMR created an ACMR Subcommittee on Information with representatives of the WHO, the National Library of Medicine, the Pan American Health Organization Regional Library of Medicine, the Iran Pahlavi Library of Medicine which WHO had designated its Regional Library of the Middle East,* and representatives of several developing countries. This brings together users of information as well as resource centers for biomedical and health information. The first collaborative undertaking is a specialized recurring bibliography in those tropical diseases selected by WHO for primary emphasis. The original plan was that the National Library of Medicine produce this bibliography from its computer system, the Pahlavi Library of Medicine print it, and the WHO distribute approximately 10,000 copies. Some modifications to this plan have been made. The first issue for the period October, November, December 1978 was produced by NLM, printed with funding from the Medical Information Center of the Karolinska Institutet and distributed by WHO. The 1979 and 1980 issues produced and printed by NLM are distributed by WHO. This bibliography, when tested, may serve as a model to develop further specialized information services and products for problem solving. The Special Committee will study the information question in depth and hopefully coordinate or bring together the most desirable efforts so that they will reinforce each other. This role of coordination would be appropriate for WHO.

Biomedical Information

The value of biomedical information and, hence, the need for a library and reference materials, were recognized by the Interim Commission. It took steps to develop a core collection by transferring "the health and medical parts of the League of Nations' Library" to the WHO or its Interim Commission, and by transfer of the Library of the Office International d'Hygiène Publique (OIHP). Preparation began for an organization which would form the basis of a WHO specialized library. The more complicated question of a comprehensive library classification which would permit future expansion as a worldwide medical information resource was postponed for future study. (*31*)

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* Presently inactive.

Agreement was reached subsequently with the United Nations which would transfer ownership to WHO of the archives, furniture, and financial assets of the Eastern Bureau of Epidemiologic Intelligence of the League of Nations in Singapore; the assets of the Darling Foundation and of the Leon Bernard Fund; and the archives, publications, and correspondence of the League of Nations' health section (the health material of the library would be on permanent loan). WHO had to reimburse the UN for monies spent for the League of Nations' publications.

As of July 1947, 200 volumes, most of them recent reference and textbooks, had been cataloged, and 152 journals and 65 periodicals published by Government departments were being regularly received. (*32*) A library committee had been set up within the Secretariat of the Interim Commission to review suggestions for the purchase of books or subscriptions to medical journals. The Interim Commission was farsighted in its definition of medical literature which included medical teaching material such as microfilm readers, films and film projectors, and special photographic apparatus. Documentation and bibliographic research were provided to respond to the information needs of the Secretariat. Their requests were varied in scope—problems handled by organizations preceding the Commission, subjects of immediate interest, and the activities of other bodies and specialized agencies connected with the Commission's work. One of the first bibliographies requested by the Interim Commission was on quarantine in order to meet legal obligations toward the Office International d'Hygiène Publique. Other subjects would be added as finances permitted. (*33*).*

The library's services were expanded to include the procurement of medical literature under the Field Services program which was principally funded by a transfer of monies from the United Nations Relief and Rehabilitation Administration (UNRRA). Ten thousand volumes and subscriptions to 400 periodicals were provided to 11 countries which were receiving UNRRA aid. New books and a regular supply of medical and other technical periodicals were obtained in exchange for the Interim Commission's publications. Arrangements were made to adapt the classification system of the United States Army Medical Library (now the National Library of

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* According to Dr. Norman Howard-Jones, delegations from member countries of OIHP were insisting that WHO should adhere rigorously to the Rome Agreement of 1907 which provided that certain bibliographic data be published as part of a monthly bulletin. However, this proposal never materialized due to the inadequacies of both the human and fiscal resources.

Medicine) to the needs of WHO. National health administrators and health experts, and technical officers within the organization all were users of the bibliographic and audiovisual material. Reference services were considered not only a necessary function for WHO but that WHO should become the authoritative body for such requests. (*34*) The Interim Commission proposed to the first World Health Assembly (WHA) a 1949 budget of $148,315 for the WHO Library and Reference Services. Eight percent was for books, periodicals, and maps; 66 percent was for the salaries of a Secretariat of 23 people plus $36,315 for allowances; $2,000 was for travel and transportation.

Delegates to the first World Health Assembly expressed their needs and desires for information and proposed various roles for WHO. Dr. N. A. Vinogradov, the USSR delegate, considered one of WHO's main tasks the speedy distribution of information on the latest scientific advances by means of a publication service. He preferred that WHO concentrate its assistance to national health organizations by "sending laboratory equipment, medicines and literature, and by disseminating the best achievements of the various national health-services." (*35*) Dr. V. Bardos, the Czechoslovak delegate, recommended that WHO act as a " 'clearing-house', that is, it should collect, analyze, interpret and disseminate information and knowledge relating to the health of nations and individuals." (*36*) Dr. D. Mateeff, the Bulgarian delegate, stated that his country attached great importance to the provision of technical information and medical literature, and that the World Health Organization could play a decisive part in this field. (*37*) Dr. G. A. Canaperia of Italy had submitted a paper which related to the establishment of central reference libraries. (*38*) The Chairman suggested referral of this document to the Executive Board for study because it proposed "sort of a clearinghouse for medical literature" which should be studied prior to final recommendation to governments.

Subsequently, the Executive Board recognized "that there are in some countries difficulties in the way of obtaining necessary medical periodicals and books, and that the lack of such periodicals and books seriously hampers the development of health services and of medical education and research." The Board, therefore, instructed the Director General to make a survey to cover the supply of medical literature, the difficulties in acquisition, the mechanisms for optimum use of available literature, and the use of microfilms as a substitute for the printed documents. Inherent in the Board's questions was the concept of sharing, either through national medical libraries or an interlibrary loan service. The Board also raised the possibility of a joint survey with UNESCO and its International Clearing House for Publications. (*39*)

Dr. Brock Chisholm, in his Director General's 1948 report on the first four months of WHO's existence, emphasized three of the world's major disease problems—malaria, tuberculosis, and venereal diseases. He stated, "It is a proud tradition of the medical profession that advances in knowledge have always been made freely available by the publication and dissemination of periodicals and books." He commented on the provision of literature by the Interim Commission and especially that distributed to the war-devastated countries. In 1947–48, literature was ordered for 13 countries amounting to some 10,500 books and 2,500 subscriptions to periodicals, not including orders for China which were directed to the New York Office.

The most extensive programs were those carried out for Byelorussia, China, the Ukraine, and Yugoslavia. The Ukraine received 5,500 books, Byelorussia over 1,000 subscriptions to periodicals. Also, as part of "medical literature," film projectors, films, microscopes, microfilm readers, special drugs, reagents, and other apparatus necessary for teaching were supplied upon request to Austria, China, Ethiopia, Poland, Italy, and Yugoslavia. Although continuing difficulties with currencies were noted, the World Health Assembly decided to continue providing medical literature in 1949, and voted $150,000 for this project. (*40*)

The course of WHO deliberations on health and medical literature services and information systems in some ways parallels the "up and down" nature of the discussions on research. These, in part, reflect the tremendous needs of the developing countries and an indecision on centralization versus decentralization of resources and services.

In 1965, the National Library of Medicine, through the chief United States delegate to the World Health Assembly, Surgeon General Luther Terry, offered the use of its MEDLARS tapes to WHO. The intent of the proposed collaboration was that WHO could fulfill a unique role in providing information services not only to its staff and technical commissions, but to the developing countries.

In 1967, WHO reached the decision that it would accept this offer and in 1969 an agreement was signed. WHO began to provide services in 1972, eventually reaching a level of approximately 5,000 computerized searches in 1976, 47% of which went to WHO staff. The level of activity in no way illustrated the magnitude of existing needs in developing countries. WHO headquarters reviewed its MEDLARS activity and a decision was made to terminate it as of December 1977. This action was apparently considered consistent with the WHO's 1976 requirement that WHO cut back on its centralized staff and activities.

Prior to the actual provision of MEDLARS computerized information services, the World Health Assembly in 1970 had decided that medical literature services to its members should be the subject of an extensive study. A working group was established and a background document prepared which described WHO activities in terms of services, publications, documents, the library, changes in WHO medical literature services, language policy, range in content of WHO technical publications, distribution, contractual publishing, medical library services. An Annex included a general survey of the medical literature. The study was a masterly effort in consolidating information, citing the opinions of different individuals from different countries and in different subject-matter fields. All was placed within an historical perspective. A number of recommendations were made upon which the WHO Executive Board could take action.

However, the fundamental questions still remain unanswered:

1. What constitutes "medical literature services"?
2. Is WHO's primary role that of an originator, catalyst, or operator?
3. How can WHO utilize existing regional and institutional resources?

If these fundamental issues were clarified at the policy level, specific programs could be identified. These might include large-scale programs such as a series of regional libraries, the design of a plan for utilization of existing computer-based information storage and retrieval systems such as MEDLARS, to very specific problem-oriented projects for the preparation of products and the development of subsets of information in specialized areas of public health. The WHO Advisory Committee on Medical Research (p. 228) has now taken the initiative for an information service in tropical diseases.

Because of the continuing requests to WHO for MEDLARS searches, a new experimental arrangement has been initiated. A Memorandum of Understanding was signed by NLM and WHO whereby WHO funds individuals who will be in residence at NLM to provide 1,400 MEDLINE searches and 2,500 interlibrary loans for one year beginning October 1, 1979. These services are for the 84 developing countries in the WHO Regions of Africa, Southeast Asia, Eastern Mediterranean and the Western Pacific. These services are modest in number compared to the needs of the developing countries. This one year experimental arrangement will be evaluated to determine a future course of action.

Recently, WHO has been encouraging the development of national health information systems, management information systems at the national and WHO levels, and systems devoted to the unpublished non-journal literature.

The problem still exists, however. If WHO does not have a mandate or does not choose to provide information services to the developing countries, who can and will assume this responsibility? Developed countries may be able to incorporate into their technical assistance programs such a biomedical information service. This, however, will be a highly selective, minimal, and scattered effort.

Observations

The World Health Organization has appeal as a unique organization. Its aims are for the good of the individual and society. The setting and the mechanisms, however, are formal and intergovernmental. Thus, its difficulties in planning, programming and execution often stem from its nature. Deliberations are made by an intergovernmental body consisting of 153 member countries with some 700 delegates and observers in attendance.

WHO has not been, is not, and probably never will be completely divorced from political intrusions and considerations. Secret ballots were requested to vote on admitting the Democratic People's Republic of Korea and on conflicts involving Israel and the Arab states. Mr. Krushchev submitted a letter in which he visualized the WHO making a contribution to peace ". . . which is possible solely through general and complete disarmament." Bulgaria stated that resources for health can be found only when there is general and complete disarmament and eradication of colonialism. Political conflicts between East and West, within the Middle East and within the African continent surface in debates on administrative and organizational matters but they are often tucked into consideration of health issues. The increased participation of developing countries and the expression of their health needs reinforce the value of WHO, the enormity of the health problems and of the resources needed. But it has also emphasized the political elements.

The inability of the United States to insure that its position on programmatic, administrative, or fiscal matters will be accepted by WHO has been demonstrated throughout the years. The United States has been consistently underrepresented on the WHO staff in terms of numbers. The United States can be more effective within the WHO setting by selecting the best possible United States representatives for all WHO related activities, whether it be for official delegations, WHO staff or Technical Commissions. This could serve not only to bring sound substantive considerations and positions to WHO but to increase communication with appropriate United States institutions, officials and the medical and health communities. This matter of representation and communication over the years merits a study of the United States pattern.

As WHO entered 1978, the phraseology was changed from donor-recipient to partners; from technical assistance to technical cooperation; and from self-sufficiency to self-reliance. The priorities now are primary health care, country health programming, appropriate technology for health, community water supply, malnutrition, malaria, essential drugs, health manpower development with a social orientation, communicable diseases, special program for research and training in tropical diseases, expanded program on immunization, mental health, and cancer control.

The recommended 1979 WHO budget of $183 million is a 6.13% increase over 1978 and will account for only 70% of WHO's expenditures as compared with 82.5% in 1977. The remaining expenditures are to be met by contributions from governmental and nongovernmental sources to the Voluntary Fund for Health Promotion. The Thirty-second World Health Assembly (May 1979) approved a two-year budget for 1980–81 of $427.29 million which represents a 20.3% real program increase over the previous biennium.

An analysis of United States past contributions and participation might provide a basis for future selection and emphasis of programs to which the United States could contribute scientifically, fiscally, and with stability and continuity for problem solving. The smallpox and malaria eradication programs present a contrast. The smallpox eradication programs of WHO and the bilateral programs of member countries (especially the United States) have successfully reinforced each other. The global eradication of smallpox was officially declared by WHO on October 26, 1979 (Chapter VI, p. 321). The WHO malaria eradication program has been underway 23 years and is now undergoing reorientation. It is proposed that the program be a combination of national determination, community participation, research and training.

There is a great deal of enthusiasm today for WHO generally, and specifically for a WHO role in research. The United States provided the stimulus and funds in 1958 which launched WHO on a medical research program which resulted in a multiproject scattered effort. Today research in tropical diseases is receiving United States special attention and support. Careful long-range planning should be part of the United States new involvement. Some thought should be given to which United States agency should do what—so that at least United States participation and its choice of mechanisms are appropriate for the activities.

Pan American Health Organization (PAHO)

Membership and Finance

WHO has six regional offices—Africa, the Americas, Eastern Mediterranean, Europe, South-East Asia, and the Western Pacific. The Regional Office for the Americas, the Pan American Sanitary Bureau (PASB, PAHO) has been selected for review because of its organization and specialized functions in research and biomedical information. There are 29 members and three participating countries (United Kingdom, The Netherlands, and France). PAHO personnel number 1,600 and represent 50 nationalities.

The PAHO 1979 budget estimate was $87.6 million compared to $183 million for WHO. However, the growth of the Pan American Sanitary Organization (PASO/PAHO) authorized budget from $285,000 in 1948 to $87.6 million in 1979 represents a 300-fold increase. Approximately $33.6 million (38%) of the $87.6 million is from member country assessments, $32.2 million (37%) from WHO and UN sources, and $21.8 million (25%) from grants and other sources. The PAHO 1980–81 biennium budget is estimated at $166.8 million. Table 59 shows the Organization of American States (OAS) scale of gross assessment and actual percentages for country contributions for PAHO 1980 regular budget proposal.

PAHO encompasses a wide range of activities including public health, disease eradication, basic sanitation, manpower development, biomedical research and communications. According to

Dr. Halfdan Mahler, Director General of the World Health Organization, with the directors of the WHO Regional Offices, left to right: **Dr. V. T. H. Gunaratne, South-East Asia; Dr. F. J. Dy, Western Pacific; Dr. H. Acuna, the Americas; Dr. H. T. Mahler; Dr. A. H. Taba, Eastern Mediterranean; Dr. C. A. A. Quenum, Africa and Dr. L. A. Kaprio, Europe. (Courtesy of the World Health Organization)**

PAHO, the distribution of the 1980–1981 funds is: 22.6% disease control; 21.8% family health; 15.4% health services; 9.6% human resources and research; 9.9% executive and administrative direction; 7.6% environmental health; 12.2% program support; 0.9% governing bodies. The allocation within the human resources and research category is 66% development of human resources; 25.6% technological resources; 7.1% coordination of research; 1.4% health systems. (*41*)

Research

The PASB according to the Pan American Sanitary Code (1924) ". . . may stimulate and facilitate scientific research and the practical application of the results therefrom . . ." The Constitution of the Pan American Health Organization enabled PAHO ". . . to promote and coordinate efforts of the countries of the Western Hemisphere to combat disease, lengthen life, and promote the physical and mental health of the people."

Table 59.—Pan American Health Organization Regular Budget—Country Assessed Contributions (1980)

Country	OAS[1] Scale (%)	Gross Assessment[2] (US $)	Actual Percentages (%)
Argentina	7.50	5,887,847	6.966
Barbados	0.08	62,804	0.074
Bolivia	0.18	141,308	0.167
Brazil	9.39	7,371,584	8.721
Chile	0.82	643,738	0.762
Colombia	0.99	777,196	0.919
Costa Rica	0.18	141,308	0.167
Cuba	1.17	918,505	1.087
Dominican Republic	0.18	141,308	0.167
Ecuador	0.18	141,308	0.167
El Salvador	0.18	141,308	0.167
Grenada	0.03	23,551	0.028
Guatemala	0.18	141,308	0.167
Haiti	0.18	141,308	0.167
Honduras	0.18	141,308	0.167
Jamaica	0.18	141,308	0.167
Mexico	7.04	5,526,725	6.538
Nicaragua	0.18	141,308	0.167
Panama	0.18	141,308	0.167
Paraguay	0.18	141,308	0.167
Peru	0.54	423,925	0.501
Suriname	0.13	102,057	0.121
Trinidad and Tobago	0.18	141,308	0.167
United States of America	66.00	51,813,049	61.293
Uruguay	0.36	282,617	0.334
Venezuela	3.61	2,834,017	3.353
Subtotal	100.00	78,504,619	92.868
	Equivalent Percentages		
Other Member Governments:			
Bahamas	0.07	54,954	0.065
Canada	7.04	5,526,725	6.538
Guyana	0.18	141,308	0.167
Participating Governments:			
France	0.18	141,308	0.167
The Netherlands	0.07	54,954	0.065
United Kingdom	0.14	109,906	0.130
Subtotal	7.68	6,029,155	7.132
Total Assessments—All Countries	107.68	84,533,774	100.000

[1] Organization of American States.

[2] The net assessment for each Government is obtained by deducting the credit from the Tax Equalization Fund and adding any adjustments for taxes imposed on the emoluments of PAHO staff.

Source: Pan American Health Organization, *Proposed Program and Budget Estimates*, No. 161.

Prior to 1960, the PASB had been engaged in public health research programs such as antimalaria drugs, the biological process of anopheline resistance to DDT and dieldrin, the assay of live attenuated poliovirus vaccines, epidemiology of malnutrition in children, and the production of a live attenuated virus vaccine for foot-and-mouth disease.

As a mechanism for the conduct of research, PAHO had established three regional research centers: the Institute of Nutrition of Central America and Panama (1946), the Pan American Foot-and-Mouth Disease Center in Brazil (1951), and the Pan American Zoonoses Center in Argentina (1956). The first geographical study

President John F. Kennedy greeting Dr. Jose Alvarez Amezquita, Secretary of Health, Ministry of Health and Welfare, Mexico on the occasion of the 1962 meeting of the Ministers of Health in Washington, D.C. On President Kennedy's right is Surgeon General Luther Terry and on his left Dr. Abraham Horwitz, Director of the Pan American Health Organization. (Courtesy of the Pan American Health Organization)

of diseases undertaken in the hemisphere was a PAHO Inter-American atherosclerosis study initiated during 1960 and supported by thirteen pathologists from Brazil, Chile, Colombia, Costa Rica, Guatemala, Jamaica, Peru, Puerto Rico, the United States, and Venezuela. As a result of a protocol conference, January 1960, the collection of aortas, coronary arteries and other arterial specimens began in this multicountry cooperation.

In December 1960, the Pan American Health Organization and the United States Public Health Service announced an agreement entitled "Statement of Arrangements between the Pan American Health Organization and the United States Public Health Service for Research." It was signed by Dr. Abraham Horwitz, Director, PAHO and Dr. Leroy E. Burney, Surgeon General of the USPHS. This joint statement was intended to improve the substance and the administration of research activities in the countries of the Americas in a mutually beneficial way to PAHO and the PHS (NIH) by "(a) Outlining ways in which the activities of the USPHS and PAHO relating to research in the Americas, particularly outside the United States, may be made more effective through appropriate collaboration. (b) Stating the general lines of development of PAHO research activities. (c) Stating the principles under which NIH research grants might be made directly to responsible investigators in the Americas." (*42*)

Under this arrangement PAHO could advise the PHS on research support in the Americas, and PHS could provide aid to PAHO in developing the latter's research program. PAHO's role would be increased aid to medical and health research by moderate financial support to research projects and programs; research conducted by PAHO staff; the provision of central professional advice and logistical support for intercountry coordination of research; and research-related activities, such as development of scientists and scientific communication.

The Public Health Service would provide technical advice on research design; research grants to investigators who may wish to participate in PAHO coordinated research programs; and research support directly to PAHO for research conducted by PAHO's staff, for central professional services, or for PAHO logistical aid as a part of coordinated research programs. PHS research grants to PAHO from which PAHO would make grants to investigators would not be permitted. The specific terms, conditions and procedures for PHS aid to PAHO would be determined within the particular circumstances of specific activities.

This expansion of PAHO's program for medical research and research training was to concentrate on the research needs and opportunities within member countries. Emphasis would be on research requiring a coordinated effort by more than one country and on research projects which eventually could permit a wider application of existing knowledge to the special problems of each country. On October 13, 1961, the Directing Council adopted Resolution XXXVIII which approved of the policy and the plan and requested Dr. Horwitz, the Director, to take action. (*43*)

PAHO submitted a proposal to NIH for a $120,000 grant to study governmental and nongovernmental research programs and activities in the Americas in order to compile comprehensive data on research facilities, qualified personnel, and financial support. The most pressing research needs in terms of problems, manpower, facilities for natural resources and research possibilities for productive work would also be examined. (*44*)

This study would then form the basis for a PAHO research policy and program. An NIH grant was awarded using the delegation of authority vested in the President of the United States in the International Health Research Act of 1960 (PL 86–610). Dr. Horwitz expressed the view that there was:

> a tendency to believe that scientific research could be done only in technologically advanced countries, a view which completely ignored the fact that the nature of problems depended in part on the environment in which they arose and that one had finally to go to the place where they originated and developed if one wanted to get to know certain of their essential characteristics. It would therefore be necessary for research to be carried on in relation to the geographical location as well as to the status and significance of problems. That was why the Organization had deemed it necessary to expand its research activities.

He mentioned the importance of ascertaining the geographical distribution of diseases, one of the research programs which could now be undertaken as a result of the agreement with the United States Public Health Service. Dr. Horwitz anticipated that scientific research could become one of the important activities in the general program of the Organization within ten years. (*45*)

In 1961 an inventory of biomedical research resources was begun in the Americas. The Director's 1961 Annual Report identified tentative guidelines. PAHO's research goal would be to stimulate and develop research activities related to its programs; to give high priority to the solution of problems which require a multicountry cooperative approach; to stimulate and assist the development of national biomedical research institutions and organizations; and to advance the development of biomedical research by promoting the training of research workers in national institutions and through international cooperative efforts. (*46*)

PAHO in 1962 encouraged the University of Michigan's Bureau of Public Health Economics to apply for an NIH research grant to study the economic implications of malaria eradication in the Americas. PAHO pledged to make a supplementary contribution equal to 10% of the NIH grant. NIH's grant of $95,000 for a three-year study to Dr. Barlow was supplemented by $9,500 from PAHO. In addition, PAHO was also prepared to advise on planning field work and selecting the areas. Dr. Barlow described a general method for measuring the major economic effects of malaria eradication with particular emphasis on growth of per capita income and applied the method to Ceylon. His conclusions were that there were some remaining questions on the validity of the model and its application to the economy of Ceylon and the extent to which it could be generalized. (*47*)

An Advisory Committee on Medical Research with 12 scientists, educators, and administrators selected from the countries of the Americas was appointed in 1961 with Dr. Walsh McDermott as Chairman. Dr. James Shannon, then Director of NIH, was among the members. At the first meeting of this Advisory Committee on Medical Research, June 1962, Dr. Abraham Horwitz, Director, PASB, stated that the Committee's functions were to "review the existing and proposed research program and make appropriate suggestions," and to "recommend the basis of a long-term research policy for present and future projects, to be approved by the Governing Bodies of the Pan American Health Organization." (*48*)

The Committee evaluated PAHO's existing research activities and research training in the following areas: environmental health, dental health, maternal and child health, nutrition, Chagas' disease, malaria, schistosomiasis, leprosy, plague, arthropod-borne virus (arbovirus) diseases, zoonoses, radiation and isotopes, health economics, and medical care. The Committee developed guidelines for determining research priorities; emphasis was on research training and the need for stable research career opportunities and permanent institutional resources for research training, graduate education, and research. Each country was urged, by establishing a National Research Council, to execute "a radical study of the programs in the health and related sciences, so as to identify where research activities should and could be stimulated and career appointments to be made to advantage." (*49*) A distinction was made between the immediate and long-range goals of supporting research; the former to solve problems in health that would promote human welfare, and the latter to upgrade the community "in its most human aspects through the cultivation of science." (*50*)

An expanded program of research would concentrate on biomedical research, bioengineering applied research, and biosocial research which would be consistent with the health goals of the Charter of Punta del Este. These categories included:

> 1. Biomedical research and research training on certain communicable and other diseases, about which current knowledge is inadequate or nonexistent, to bring about their control and possible eradication; 2. Bioengineering applied research and technical training in environmental health having to do especially with sanitation, potable water supply, waste disposal, and industrial health problems; and 3. Biosocial research and research training dealing with the economics and social anthropology of health and medical care. (*51*)

The Committee believed that biomedical research was essential to produce knowledge needed to control communicable diseases. With regard to bioengineering applied research, the Committee recommended that each country establish an experimental station associated with a technical institution "where solutions to problems of applied research, adaptation of known principles, and the training of technological personnel could be stimulated . . ." In the third category of research on the social and economic aspects of health and diseases and of medical care, the Committee stated its belief that "the need for exploring anthropological approaches, human behavior, and mechanisms of mass education to accept new ideas and to change existing habit patterns is as important in treating problems associated with the environment as it is in all public health activities, and warrants emphasis in any consideration of applied research." (*52*)

Equally as important as medical and biological research in the opinion of the Committee was research in medical care and its economic aspects. This kind of research would lead to integrating health, economic growth and development. The Committee's recommendations on research policy and programs were approved by the 16th Pan American Sanitary Conference (1962). There was general agreement that the training of research workers was the most important factor in promoting scientific progress. Resolution XXVI requested the Director "to take all possible steps to expand the research activities of the Organization, including specific projects and their financing, for the mutual benefit of the countries of the region." (*53*)

A review of the Reports of the Pan American Health Organization Advisory Committee on Medical Research (ACMR) (1961-79) reveals the trends in both the Committee's role and PAHO research programs. Periodically the ACMR reviewed its composition, its function and sponsored studies and symposia to clarify and guide PAHO's research efforts. Following the initial study done on Latin American research in 1961, the ACMR in 1965 requested a special study on the manner in which Latin American countries determined policies for biomedical research.

In 1972 the Committee reviewed the nature of biomedical research support to developing countries by external agencies, with the intent of drawing from those experiences that which would be educational for PAHO in terms of successes and failures. Governmental agencies such as the National Institutes of Health, the British Medical Research Council, the Swedish International Development Agency, the U. S. Army Medical Research and Development Command, and the private organizations, The Rockefeller Foundation and the Wellcome Trust of London, reviewed for PAHO the manner in which they engaged in international activities. Variations in programs ranged from establishing and operating research units in institutions in developing countries but with staff primarily from the external country to the support of research and training. Items discussed included continuity in research, selection of research which would not only contribute new knowledge but assist in solving the region's health problems. The training of research workers was emphasized and research support from local and internal resources was encouraged and considered necessary. However, it was recognized that due to heavy demands placed upon a developing country, resources for research might not be significant.

The PAHO research activities were directed toward solving practical problems but with the recognition that modern science and technology would be needed to do so. The partnership approach was emphasized in contrast to technical assistance and also, during this period the concept of a Pan American Health University was discussed but no definite action taken. In 1971, the Pan American Health and Education Foundation was established to receive, as appropriate, funds from the public and private sectors, private foundations and the Inter-American Development Bank that could not be made available directly to PAHO. These monies were and are used to support PAHO activities, and one of the earliest programs was for the provision of textbooks.

In 1972 PAHO conducted another survey of the state of biomedical research in Latin America and the Caribbean. The conclusions from the 1972 survey were that research is very unevenly distributed throughout the region. Research was strong in fields such as genetics, biochemistry, nutrition, reproductive physiology, immunology and parasitology, but weak in clinical investigation, epidemiology, virology, and public health administration. Biomedical research was hampered by the lack of a scientific tradition, political instability, lack of resources, and poor scientific communications. Separate research institutes had been established and many countries had set up national councils for scientific research, some of which were policy groups, and others provided funds for the conduct of research. The lack of trained manpower had a direct impact on the level of biomedical research. From a debate on basic versus applied research, the Committee concluded that there were three types of research needed: (1) educational research for scientists and doctors to be supported by Ministries of Education as the body responsible for universities; (2) basic research for the creation of knowledge which should be supported by scientific academies and research councils; and (3) operational research designed to solve and define health problems and to be supported by Ministries of Health.

There were 151 research projects in 1976 which extended from basic laboratory research to clinical, epidemiologic and methodologic studies. In these activities, PAHO was either a grantor, grantee, or collaborator. The 1976 ACMR report characterized the 15 years of PAHO's research program as "(1) stimulation and support of biomedical research and research training with emphasis on collaborative multinational projects; (2) strengthening of biomedical communications and resources through scientific meetings and the provision of modern bibliographic and other library services; and (3) promotion and application of operations research to improve the efficiency of health facilities and programs." From these 15 years of activity there were 216 technical reports and 31 scientific monographs. Specific accomplishments credited to the PAHO research program were the development of a Regional Library of Medicine in Sao Paulo; the Caribbean Epidemiology Center in Port of Spain; two Immunology Research and Training Centers in Sao Paulo and

Mexico City; the PAHO/Walter Reed/Instituto Evandro Chagas Research Unit on Disease Surveillance in Belem; the PAHO/Harvard/Wellcome/University of Bahia Research Unit on Chagas' Disease and Schistosomiasis in San Salvador; the Perinatology Center in Montevideo; the special research programs on endemic goiter, mycology, arbovirology, and dengue; the grants program for research and research training; and the program of scientific meetings and symposia whose proceedings are recorded in the PAHO Scientific Publication Series.

The year 1976 marked the beginning of a change in emphasis for PAHO research. Dr. Hector Acuna, the new Director of PAHO, presented his concepts of the functions and composition of the ACMR and research interests of PAHO. He indicated that the latter should be consonant with WHO priority areas of health, such as strengthening of health services with coverage to rural and underserved areas, control of disease especially communicable diseases, development of human resources and research activities, family health and family planning with emphasis on mothers and children, and environmental health—that is water supply, sewage disposal, solid waste and environmental pollution.

In 1977 the Advisory Committee on Medical Research began to focus its discussions on nutrition, ecology, communicable diseases, and the development and extension of health services. In 1977 Central America and Panama were surveyed in terms of their resources; that is, projects, investigators, associations, and institutions for dissemination of information. It was decided to extend this type of study to other countries in Latin America. PAHO also initiated activities relating to the formulation of policies on health research in the member countries and to study country requests for cooperation in the development of such policies. A series of meetings is being held by groups of countries to examine and develop health research policies.

Over the years, PAHO's research efforts have been rather selective, and have been based primarily on existing institutions and the establishment of regional centers. As of 1979 PAHO had eight Regional Research Centers. In addition to the Institute of Nutrition of Central America and Panama (Guatemala, 1946), Pan American Foot-and-Mouth Disease Center (Brazil, 1951), and the Pan American Zoonoses Center (Argentina, 1956), established prior to 1960, five more were established in the period 1966–77: Caribbean Food and Nutrition Institute (Jamaica, 1966), Pan American Center for Sanitary Engineering and Environmental Sciences (Peru, 1968), Latin American Center for Perinatology and Human Development (Uruguay, 1969), Caribbean Epidemiology Center (Trinidad, 1977), and Pan American Center for Human Ecology and Health (Mexico, 1977). Two regional centers were terminated, the Center for Health Planning in Santiago, Chile and the Institute for Research in Medical Care, Buenos Aires, Argentina.

Four examples of PAHO activities will be given to illustrate (1) multicountry research, (2) a public health endeavor, (3) a regional approach to research, teaching and application, and (4) a regional approach to biomedical information.

Multicountry Research—*Comparative Epidemiology*

The Charter of Punta del Este signed by the Health Ministers of the Americas in 1961 included as one of its goals in a ten-year period the reduction by one-half of mortality in children under five years of age. Child mortality, in particular infant mortality, according to Dr. Abraham Horwitz (*54*) is a very sensitive indicator of the degree of underdevelopment of a community. In order to examine the many facets of this problem, Dr. Ruth Rice Puffer and Dr. Carlos V. Serrano conducted a collaborative research program in comparative epidemiology which analyzed the factors involved in the morbidity and mortality of mothers and children and studied the interrelationships of disease and other conditions.

Dr. Puffer and Dr. Serrano developed selected community research projects in both rural and urban areas of the Americas with distinctly different patterns of mortality with the objective of establishing accurate and comparable death rates for infancy in childhood, taking into account biological, nutritional, sociological and environmental factors. Data were obtained on 35,095 deaths of children under five years of age in 15 different projects in 10 countries—Argentina, Bolivia, Brazil, Canada, Chile, Colombia, El Salvador, Jamaica, Mexico, and the United States. The study's recommendations related to maternal and child health and nutrition, education in the health sciences, development and improvement of basic health data and statistics, and epidemiological research. Nutrition deficiency was found to be the most serious health problem. Diarrheal diseases and measles were the principal causes of death by infectious diseases. Measurements were made of the relationships of abnormal conditions in the mother before and during childbirth. Another conclusion was that adequate and safe water supplies and sanitary facilities would greatly reduce mortality in both urban and rural areas. This study demonstrated that coordinated community-centered research can uncover health problems and provide needed data which should be integrated into overall health programs. (*55*)

Public Health

Sanitation and Water Supply

Another goal cited in the Charter of Punta del Este was to supply water and sewage to at least 50% of the rural population of the Americas by the end of 1971. At the end of 1972, the countries of the Americas had raised the proportion of rural dwellers having a potable water supply from about 7% to 27%; this actually increased the population served by a factor of about 4.7. There were 33 million rural inhabitants being served by approximately 30,000 systems that the inhabitants themselves helped national programs build. International credit agencies provided 24 loans (January 1961-December 1972) totaling $73.5 million; and there were matching funds from the governments in the amount of 40–60% of the loan, and oftentimes additional contributions of 20–30% more for construction grants and operations. A total of approximately $400 million was invested in rural water programs between 1961 and the end of 1972, and 80% had come from national sources. (*56*)

At their third Special Meeting in 1972, the Ministers of Health adopted as part of their ten-year health plan for the 1970s the following targets: to provide water services with house connections for 80% of the urban population, or as a minimum, to reduce that proportion currently without services by 50%; and to provide water for 50% of the rural population, or as a minimum, to reduce that proportion without service by 30%. Although much has been accomplished, according to David Donaldson and Guillermo Davila, if the current rate of progress continues, it will be 40 years before Latin America and the Caribbean will be able to provide safe water for only half of its rural inhabitants. A comparison of the populations served by 1971 and those to be served by 1981, indicated 156 million people yet to be served, and $4.5 billion more needed; this investment relates only to the water supply portion of the Ministerial goals. As of 1977, 22 out of every 100 living in urban areas lack safe water; and only 34 out of every 100 living in the rural areas were served from a piped supply by the end of 1977. (*57*)

Regional Research, Training and Application

Institute of Nutrition of Central America and Panama (INCAP)

Origin.—The Institute of Nutrition of Central America and Panama (INCAP) illustrates that scientific and fiscal cooperation can exist among governments, private foundations, and an international intergovernmental organization (PAHO). INCAP has a history of over thirty years, and this history includes invaluable experience, scientific and technical achievements and regional collaboration.

In 1946, the Ministers of Health of the five countries of Central America and Panama, the Kellogg Foundation, and the PASB approved the concept of a cooperative effort to examine and hopefully solve some of the nutritional problems faced by these five countries. In 1947 Guatemala, Honduras, and El Salvador ratified the agreement. The following year, these countries took a most important first step—the development of human talent to work on nutritional problems. They sent university graduates to the United States for training in clinical nutrition, food chemistry, and nutrition and dietetics.

INCAP was officially inaugurated on September 15, 1949 in a tin-roofed adobe building provided by the Government of Guatemala with nine professionals from these three Central American countries. Subsequently, Nicaragua, 1954, Costa Rica, 1955, and Panama, 1956, joined the endeavor; and in each case, the participating countries sent professionals for advanced training to the United States and contributed staff to INCAP. (*58*)

Finances.—The first year's budget was $25,500 derived from the countries' quotas, $8,500 each from Guatemala, Honduras, and El Salvador. The W. J. Kellogg Foundation made an initial grant of funds to assist PAHO in its administrative participation for the provision of fellowships for training, equipment and supplies and funding for a library with current periodicals and books. In addition to member country contributions, at various stages funds have also been provided by the Nutrition Foundation, the Research Corporation, Josiah Macy, Jr. Foundation, Ford Foundation, The Rockefeller Foundation, Nestle Foundation, the United States National Institutes of Health, the International Committee on Nutrition for National Development, the United States Agency for International Development, the Canadian International Development

Top left, young girl suffering from severe malnutrition which leaves her virtually unprotected against the common diseases of childhood; top right, Incaparina packed in 50 pound cartons for shipment from the factory in Guatemala City. The Institute of Nutrition of Central America and Panama developed Incaparina, a vegetable protein formula including vitamins A and B and calcium carbonate to supplement children's diet; bottom, **a Guatemalan woman is cooking Incaparina with water to provide a day's supply of protein for a preschool child. (Courtesy of the Pan American Health Organization)**

Research Center, the Pan American Health Organization, United Nations Children's Fund, and the World Health Organization.

In 1971, the Director of the Pan American Health Organization recommended that each member country contribution be changed from a specific fee to one based on a percentage of its economic capabilities for a total member funding of $250,000. In 1977, PAHO's contributions were $671,763. The Nutrition Foundation and the Research Corporation were the initial supporters of INCAP research; and in 1979 INCAP was receiving approximately $3.9 million in grants or contracts from external sources. As of January 1978, El Salvador and Guatemala were current with their quota contributions; but in arrears were Panama, $5,800; Costa Rica, $227,582; Honduras, $331,788; and Nicaragua, $330,454.

Research, Training, and Application.—INCAP conducts research and development programs, trains personnel, and provides advisory services to a number of countries to assist them in developing their own capabilities and nutritional programs. The research programs of the Institute are directed toward increased knowledge and understanding of the epidemiology and the effects of nutritional deficiencies, such as protein energy malnutrition, endemic goiter, Vitamin A and nutritional anemias. The scope of research has also been extended to include aspects of agricultural sciences, food safety, social anthropology and economics. As of 1977, INCAP had 53 projects in Central America distributed as follows: Costa Rica, 6; El Salvador, 8; Guatemala, 10; Honduras, 10; Nicaragua, 12; Panama, 7. (*59*) These projects vary and may include national food and nutrition plans, evaluation projects to monitor food and nutrition programs, reorganization of hospital food and dietetic services, and production and preservation of food, particularly low-cost processed foods with high nutritional value.

A few specific examples illustrate the application of research in a practical and meaningful way. INCAP developed Incaparina, a low-cost nutritious food. Vitamin A deficiency is a serious nutritional problem in Central America, which can impair vision or cause other disorders. INCAP developed a practical technology which fortified sugar with water soluble Vitamin A which is now being tested in a number of the Central American countries to evaluate its effectiveness. Programs have begun in five of the six countries to use and distribute iodized salt as an endemic goiter control measure. Experiments performed by INCAP indicate that sugar consumption fortified with a chelated iron salt assisted in reducing the incidence of anemia in a small population sample. Research continues on basic foods, the adverse effects of infections on the nutritional status of children, correlating the nutritional status and productive capacity of agricultural workers, correlating better nutrition with less illness in mothers and better weights at birth and higher survival rates in children.

Training of INCAP staff began initially with short courses and workshops. Subsequently INCAP and Central American universities developed the Center for Advanced Study in Nutrition and Food Science at the University of San Carlos in Guatemala. These programs include a four-year undergraduate course and postgraduate courses leading to a Master's Degree. Over 2,000 students have participated in INCAP's training and educational programs, and in the period 1974 to 1977, there were 462 students from 28 countries, including the United States.

INCAP now includes laboratories in biochemistry, microbiology, virology, tissue culture, food chemistry, work physiology, and hematology, a pilot plant for food processing, a computer center, teaching laboratories in classrooms, an animal colony, a library, a clinical center for metabolic and clinical investigations, an experimental farm for agronomic research and field stations in different ecological areas for epidemiological and other studies of the human population. What began as nutrition specifically related to health now encompasses aspects of agriculture and education in governmental, university and private sectors, and also relates to some of the national planning activities.

Another outgrowth of INCAP activities has been that some of these nutritional studies have suggested simplified medical care where subprofessional people can be effective. More than 95% of outpatients coming to rural clinics could be treated adequately by this type of staff, and this led to the development of simplified techniques identifying high risk families.

The characteristics of INCAP which illustrate effective international collaboration are (1) programmatic and fiscal commitments by the participating countries; (2) the setting of an international intergovernmental organization, PAHO; (3) stability and continuity in leadership; (4) emphasis on training and research applied to specialized needs; (5) consultation with member governments on future program activities within a country; and (6) development of excellence which attracted external sources of funding for continued and new activities.

Biomedical Information

PAHO was an innovator in developing a regional biomedical information resource for South America—the PAHO Regional Library of Medicine (BIREME). Today BIREME has no regional equivalent throughout the developing world in providing information to the health professional in research, education, or practice. This has been a step-by-step process, beginning with training of personnel, acquisition of printed material and nonprint media, and more recently computer-based bibliographic information storage and retrieval for effective delivery of information services. It is also an interesting example of multiple cooperation of an intergovernmental organization (PAHO), government agencies (United States and Brazil), and private foundations. The details are in Chapter VII, pages 334–39.

Observations

The research program of PAHO was shaped within the framework of the Charter of Punta del Este (1960) and the Ministerial Ten-Year Health Plan (1971). Specific health problems were identified for which research was to be undertaken. PAHO also undertook regional studies in comparative epidemiology where there was joint planning and activity involving PAHO, the region, and individual nations.

Funding for research has been a combination of PAHO funds, country funds and external sources. Thus a match was needed between the problem, the human talent, fiscal resources, and the objectives of the funding institutions and PAHO. Many of PAHO's research programs have been based on existing institutions or on the establishment of regional centers which have not only performed research but training. PAHO's 1979 research budget was $5.3 million. The major portion of these funds has consistently emphasized nutrition and animal health, 62.9% in 1967 and 64.1% in 1979.

The United States, WHO and PAHO

The United States has been an active participant in WHO and PAHO since their founding. The Surgeons General of the PHS, Rupert Blue, Walter Wyman and Hugh Cumming all were Directors of the PASB. Although no United States physicians have been

Director General of WHO, they have served as Presidents of the World Health Assembly and Chairmen of the Executive Board.

The United States has not only encouraged both organizations to examine their role in research and become more active, it has provided funds to both organizations. PAHO and WHO historically have approached their role in research differently. WHO stimulated and supported numerous projects but is now emphasizing the tropical diseases. PAHO has consistently provided a major portion of its research funds to nutrition and animal health and has encouraged and established regional centers.

The physical presence of PAHO headquarters in Washington has enhanced direct personal communication with United States officials. This, coupled with the early work of The Rockefeller Foundation in Latin America, has perhaps made the United States a little more informed on health problems and solutions as they relate to the Western Hemisphere than in other parts of the world. Moreover, the political intrusions which result from East-West conflicts are absent from the PAHO setting.

In biomedical communications, PAHO was able to convert the concept of a regional library to reality with its creation of the Biblioteca Regional de Medicina (BIREME) which was established to provide biomedical and health information needed in Latin America for research, teaching, and health care. WHO has not established such regional information resources.

Both organizations present an opportunity for international accomplishment and both warrant thoughtful participation and support by the United States in such a manner that (1) United States objectives can be achieved without distorting the nature of the organizations and (2) WHO and PAHO objectives remain realistic and achievable.

INTERNATIONAL COOPERATION: THE BILATERAL AGREEMENT

Origin of United States Bilateral Health Agreements

Institute of Inter-American Affairs

Health, Security, and Economic Development

In the nineteenth century, the United States had participated in bilateral conventions designed to control epidemics; and, at the turn of the century, the United States was active in the development of the International Sanitary Bureau (ISB), the predecessor to the regional health organization for the Americas (PAHO). The bilateral governmental health agreement which is in vogue today had its origins 38 years ago. During World War II the Ministers of Foreign Affairs of 21 American Republics recommended in January 1942 that a bilateral health agreement be used as a mechanism to improve the security and prosperity of their nations. This action was based on the Ministers' belief that health programs could assist in achieving higher economic levels in Latin America. Thus, a political motivation and stimulus for bilateral scientific/technical arrangements is not a new occurrence.

Two years earlier, in June 1940, President Franklin Delano Roosevelt had received from his personal aide Harry Hopkins, a memorandum given to the latter by Nelson Rockefeller entitled "Hemisphere Economic Policy." This memorandum drew upon Mr. Rockefeller's knowledge and experience of the Latin American medical and public health programs of The Rockefeller Foundation and their relationship to economic growth. Mr. Rockefeller's memorandum resulted in the Council of National Defense creating by an executive order the Office for Coordination of Commercial and Cultural Relations between the American Republics. It was to be headed by a "Coordinator," a position to which Mr. Rockefeller was appointed. On July 30, 1941, the office was renamed Office of the Coordinator of Inter-American Affairs and placed within the Executive Office of the President. (*1*) In March 1942, a vehicle was established to execute the Latin bilateral agreements—a corporation of the United States Government, the Institute of Inter-American Affairs (IIAA). IIAA was established under the Office of the Coordinator of Inter-American Affairs with four major objectives—military, political, production of critical materials, and public relations. The United States, through the IIAA, wished to (a) improve health conditions in strategic areas, (b) execute United States obligations for health and sanitation programs assumed by the United States as a result of the 1942 Ministerial Conference, (c) increase the production of critical materials in areas where bad health conditions existed; and (d) gain the active support of the civilian population by demonstrating the tangible benefits of a democracy. Many of these objectives were tied very closely to World War II considerations.

On May 30, 1946 the Office of Inter-American Affairs, as it was then known, ceased to exist but many of its operations were continued. (*2*) An Act of Congress, August 5, 1947, continued the Institute of Inter-American Affairs and modified its objectives as "to further the general welfare of, and to strengthen friendship and understanding among, the peoples of the American republics through collaboration with other governments and governmental agencies of the American republics in planning, initiating, assisting, financing, administering and executing technical programs and projects, especially in the fields of public health, sanitation, agriculture and education." Funding for the IIAA was provided by the United States Government.

Programs and Funding

Dr. George C. Dunham was named Director of the Institute of Inter-American Affairs (IIAA) in March, 1942. The first United States bilateral agreement was with Ecuador; and, by the end of 1942, programs were established in ten more countries—Haiti, Paraguay, Costa Rica, Nicaragua, Honduras, El Salvador, Peru, Brazil, Guatemala, and Bolivia. In 1943, Colombia, Panama, Venezuela, Chile, Mexico, Dominican Republic, and Uruguay entered into arrangements with the United States for a total of 18 agreements.

The procedure was an exchange of diplomatic notes on the subject of the cooperative program, and subsequently the IIAA and the appropriate Ministry of the cooperating host government signed a basic agreement. The cooperating entities in the bilateral agreements were the IIAA and a unit designated Servicio in one of the ministries of the host government. The Servicio was responsible for planning, executing or assisting in the development of projects for the host country.

Of the $107 million for program funding for 18 Servicios in Latin America from 1942 to 1951, approximately two-thirds was from the host countries and one-third from the Institute of Inter-American Affairs (Table 60). Thus, technical assistance need not be a financial or an intellectual one-way street. (3) From 1942

Table 60.—United States-Latin America Program Funding for Cooperative Projects of 18 Servicios in Latin America (1942–1951) in Thousands of Dollars

Country	Host Countries [1]	IIAA [2]	Total
Bolivia	$2,967	$1,885	$4,852
Brazil	22,693	8,665	31,358
Chile	3,808	5,400	9,208
Colombia	7,472	2,108	9,580
Costa Rica	359	840	1,199
Dominican Republic	175	400	575
Ecuador	3,548	3,527	7,074
El Salvador	2,151	965	3,116
Guatemala	5,147	1,050	6,197
Haiti	1,388	1,088	2,476
Honduras	2,015	975	2,990
Mexico	3,391	5,200	8,591
Nicaragua	270	850	1,120
Panama	175	562	737
Paraguay	1,376	1,650	3,026
Peru	3,691	2,245	5,936
Uruguay	1,002	725	1,727
Venezuela	5,689	1,600	7,289
Total	$67,316	$39,734	$107,051

[1] Includes financial contributions by state and local governments and philanthropists in host countries, but does not include $6,552,171.01 contributed by host government in other than cash (buildings, land, etc.).

[2] Institute of Inter-American Affairs, a United States Corporation funded by the United States Government.

Source: U.S., Public Health Service, Department of Health, Education, and Welfare, *10 Years of Cooperative Health Programs in Latin America, An Evaluation, for the Institute of Inter-American Affairs*, 1953, p. 8.

through June 1951, the total cost of 1,665 special and cooperative projects was approximately $103 million (including both United States and other country contributions). Of these, 125 special projects were financed directly by the IIAA for $3.4 million; the 1,540 cooperative projects with joint funding accounted for $99.6 million. The distribution of these 1,540 projects and the cost by country are given in Table 61.

The 1,540 cooperative projects in health and environmental sanitation are categorized in Table 62. Of the $99.6 million, 37% was for construction and operation of hospitals, health centers, and other medical facilities and services; 21% for environmental sanitation; 18% for administration; and 12% for special disease control. More modest amounts were for training facilities and programs, $4.6 million (4.6%); health education, $789,000 (0.8%); nutrition, $458,461 (0.5%); and special medical research, $6,000 (0.006%). (*4*)

Table 61.—United States-Latin America Cooperative Health and Environmental Sanitation Projects 1942–1951

Country	Projects	
	Number	Estimated Cost (Thousand $)
Bolivia	105	$4,802
Brazil	349	26,391
Chile	44	9,083
Colombia	75	8,961
Costa Rica	43	1,038
Dominican Republic	24	571
Ecuador	138	6,861
El Salvador	127	3,006
Guatemala	38	6,195
Haiti	89	2,414
Honduras	69	2,959
Mexico	125	8,366
Nicaragua	68	1,029
Panama	29	685
Paraguay	39	2,988
Peru	50	5,872
Uruguay	31	1,416
Venezuela	97	7,025
All Countries	1,540	$99,662

Source: U.S., Public Health Service, Department of Health, Education, and Welfare, *10 Years of Cooperative Health Programs in Latin America, an Evaluation, for the Institute of Inter-American Affairs*, 1953, p. 6.

Table 62.—United States-Latin America Major Categories of Cooperative Health and Environmental Sanitation Projects (1942–1951)

Categories	Number	Estimated Cost (Thousand $)
Administration, rent equipment	134	$18,333
Strengthen directly indigenous national and local health services (administration buildings, laboratories, equipment, technical assistance, etc.)	66	3,399
Training facilities and training programs	118	4,649
Hospitals, health centers, and other medical facilities and services (construction and operation)	431	36,745
Special disease control (including malaria control by drainage)	220	12,162
Medical care programs for highway workers, rubber workers, etc.	31	975
Environmental sanitation (water supplies, sewage disposal facilities, markets, slaughterhouses, etc.)	494	21,015
Health Education	19	789
Industrial hygiene—surveys and studies	2	294
Nutrition (construction, equipment and operation)	6	458
Public health statistics	1	0.5
Special medical research	2	6
Social welfare (construction of buildings, playgrounds)	7	90
School health program	1	6
Miscellaneous	8	712
Total	1,540	$99,633

Source: U.S., Public Health Service, Department of Health, Education, and Welfare, *10 Years of Cooperative Health Programs in Latin America, An Evaluation, for the Institute of Inter-American Affairs*, 1953, p. 7.

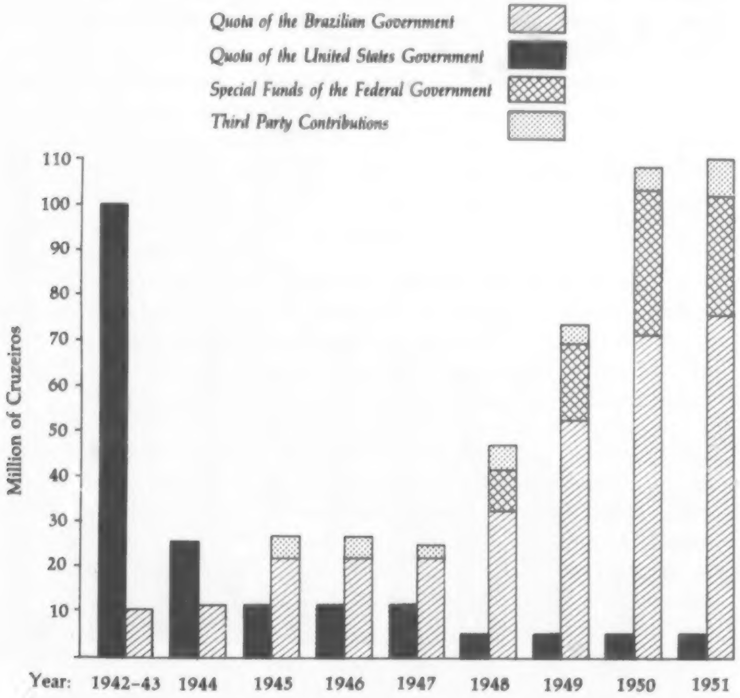
Under the agreements, the IIAA would send a Field Party, usually consisting of a physician, an engineer, and a nurse. The Chief of the Field Party had a dual role serving as both the IIAA representative and the Director of the Servicio in the host government. Brazil was the exception where the Director of the Servicio was a Brazilian. During the years of World War II, United States physicians and sanitary engineers were often assigned from the Office of the Surgeon General of the Army. As of June 1952, 7,134 Latin Americans were working in the health program and 119 United States personnel were in the Field Parties and in a technical pool. Included in these figures were 462 Latin American and 15 United States physicians and dentists, 298 Latin American and 20 United States graduate nurses, 94 Latin American and 26 United States sanitary engineers, 59 Latin American and 11 United States civil and other engineers, and 40 Latin American and four United

Examples of activities under the Institute of Inter-American Affairs: Top, **A public laundry at Lempa and** bottom, **a Santa Tecla Health Center in El Salvador. (Courtesy of Dr. Henry van Zile Hyde)**

States health educators. Professionals from the United States Public Health Service were active in the execution of these bilaterals.

The operations of the Brazilian Servicio (Serviço Especial de Saude Publica) illustrate that funding and personnel were shared responsibilities. Figure 13 illustrates the pattern of funding the Servicio from 1942–51, with the United States share decreasing as the Brazilian Government quota, contributions from the federal government of Brazil and others increase. Similarly, after one year of operation Brazilian professional and technical personnel in the Servicio outnumbered United States staff and after nine years, they accounted for about 90% of the staff (Figure 14). The Brazilian Servicio also established in 1947 a journal (Revista do Serviço Es-

Figure 13. Funding of the Serviço Especial de Saude Publica by the Governments of Brazil and United States (1942–1951).

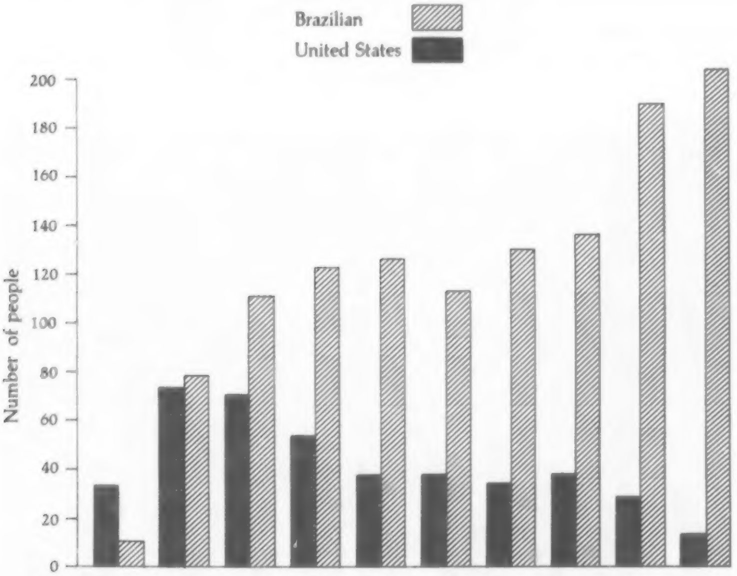


Source: Diplomatic Notes and Contracts between Brazil and the United States of America from 1942 to 1952 in the Development of a Bilateral Cooperative Health Program, 1953.

pecial de Saude Publica) so that the full scope of the Servicio's activities in the field of medicine and hygiene would be known to all.

The agreement between Brazil and the United States terminated ~~in 1960, but the~~ Servicio continues as the Fundaçao Serviços de Saude Publica (FSESP) established by Brazilian legislation. Thus, there exists today an organization which had its origins in this bilateral agreement between the United States and Brazil. The Fundaçao's objective is to promote programs in health, sanitation, training of technical and auxiliary personnel, and to conduct studies and research necessary for the development of its activities. Thirty years of public health activities of this organization (1942–72) have been summarized (5) and an examination of it as a study of institutional development has been made. (*6*)

Figure 14. United States and Brazilian technical personnel in the Serviço Especial de Saude Publica, Brazil (1942–1951).



Source: Diplomatic Notes and Contracts between Brazil and the United States of America from 1942 to 1952 in the development of a Bilateral Cooperative Health Program, 1953.

Evaluation

The Public Health Service, invited to assess IIAA programs, established an Evaluation Team consisting of Dr. Joseph W. Mountin, Chief, Bureau of State Services, Public Health Service; Dr. Henry van Zile Hyde, Director, Division of Health and Sanitation, IIAA; Dr. Wilton L. Halverson, Director, California Department of Public Health; Dr. John J. Bourke, Executive Director, New York State Joint Hospital Survey and Planning Commission; Earl V. Bradsher, Director of Welfare Administration, New York City; Edna F. Brandt, Assistant Chief Nurse, Division of Chronic Disease and Tuberculosis, Public Health Service; Dr. Mayhew Derryberry, Chief, Division of Public Health Education, Public Health Service; Dr. George M. Foster, Visiting Professor of Anthropology, University of California; Richard F. Poston, Officer in Charge of Western Gulf and Colorado Drainage Basins, Office for Stream Pollution Control, Public Health Service; and Dr. George K. Strode, formerly Director of the Division of International Health, The Rockefeller Foundation.

The Evaluation Team examined not only the programs in sanitation, specific diseases and nutrition, training and education, nursing, health education, hospitals, and health centers, but the program planning, general administration and cultural factors. Thus, their analysis included not only the specific health activities but whether they improved health conditions and standards of living, and the effectiveness of the Servicio administratively and in strengthening indigenous health services.

The Team commented that the bilateral mechanism had been selected because existing multilateral, national, or private philanthropical organizations "could not be adjusted to take care of the new foreign-political-technical work seen as necessary for the solution of critical economic, food and health problems identified as obstacles in the way of attainment of either immediate or long-range goals." In its evaluation of the Servicio, the Team observed that establishing a Servicio within the governmental structure of a Latin American country by a formal agreement with the United States was important for stability and operations. Furthermore, the degree to which the Servicio was integrated with the host government structure had a direct bearing on its success. However, planning and evaluation functions of the bilateral arrangements lacked clear definition.

The Evaluation Team concluded that medical and hospital services should be improved and strengthened but not beyond the ability of the economy to employ the product. Priority would be given, in the first stages of health service, to inexpensive projects where the yield outweighs the cost. This was preferable to heavy fixed capital investment. The Team also recognized that there are projects whose success depends greatly on a concurrent attack on major contributing factors external to the immediate objective of the project. Thus, it is worthless to launch some projects unless adequate resources are applied to these other contributing and controlling factors. These observations based on practical operating experience have applicability today. (7)

United States Bilateral Science and Technology Agreements

It was a formal group action by the Ministers of Foreign Affairs in 1942 that encouraged and resulted in individual bilateral health agreements between the United States and Latin countries. In more recent years, the United States President or the Secretary of State and their counterparts have initiated such agreements on a country by country basis without an overall regional context; and, in many cases, the United States has been the instigator. The objective may be security, peaceful coexistence, or the need to have a dialogue which cannot take place in any other framework because political, economic, or ideological differences intrude upon and deter potential actions. Thus, the President or the Secretary of State may agree with a foreign counterpart to cultural, educational, or scientific and technological collaboration or to the establishment of a Joint Commission for Cooperation under which many areas are subsequently subsumed. Some examples of Presidential statements are given in Chapter III.

Of the current United States Bilateral Agreements for Science and Technology, the oldest is that with Japan initiated by President Kennedy and Prime Minister Ikeda in 1961 (Chapter III, pages 99–100). Table 63 gives a summary developed from the latest fact sheets available (1977) from the Department of State (State) on the nature of the United States bilateral science agreements. The level of funding indicated does not represent total expenditures because staff and programming costs are not included. Also excluded from the Table are the United States bilateral agreements with the USSR and Communist States of Eastern Europe (Soviet bloc) countries for which no overall Federal costs are available. After these basic agreements between governments are signed, there may be the carving out of a

best copy available

Table 63.—United States Bilateral Science Agreements (Excluding USSR) (as of 1977)

Country	Date Signed	Nature	U.S. Funding
Argentina	4/7/72	Scientific and Technical Cooperation	$300,000 annually.
Australia [1]	10/16/68 7/30/73 R [2]	Scientific and Technical Cooperation	$500,000 annually.
Brazil	12/1/71 12/29/76 R	Scientific and Technical Cooperation	$700,000 annually.
China, Rep. of [1]	1/23/69 1/23/75 R	Scientific Cooperation	$700,000 annually.
Egypt	6/6/75	Technology, Research & Development	$8 million annually.
Egypt [3]	10/28/76	Health Cooperation	$6 million annually.
France	7/29/69	Cooperative Science Program	$5 million annually.
Germany	9/27/66	Natural Resources	
India [3]	10/28/74	Science and Technology	$9 million annually.
India	2/14/67	Exchange of Scientists	$75,000 annually.
Iran	8/4/75	Science, Technology & Education	Costs reimbursed.
Israel [3]	9/27/72	Binational Science Foundation	Endowment Income.
Israel	3/3/76	Industrial Research & Development	$30 million annually.
Italy [3]	6/19/67 12/11/72 R 9/10/75 R	Scientific Cooperation	$5 million annually.
Japan	6/22/61	Cooperative Science Program	$1.3 million annually.
Japan	5/13/64	Development & Utilization of Natural Resources	$500,000 annually.
Japan [3]	1/13/65	Medical Science Program	$6 million annually.
Korea	1/22/76	Scientific and Technical Cooperation	Less than $50,000 in FY 77—afterwards several hundred thousand annually.
Mexico	1/15/72	Scientific and Technical Cooperation	$800,000 annually.
New Zealand	2/27/74	Scientific and Technical Cooperation	$20,000—FY 76 expected to increase.
Saudi Arabia [3]	6/8/74	Technology, Research & Development	Costs reimbursed.
Spain	1/24/76	Scientific and Technical Cooperation	$4.6 million after first year, $6.4 million—1st yr.
Tunisia	11/9/74	Economic Development	$370,000–$420,000 recommended.

[1] NIH participation.
[2] R=Renewal.
[3] HEW participation.

Summary from Dept. of State Fact Sheet on Bilaterals (1977).

role by State, oftentimes the designation of the National Science Foundation (NSF) as the "executive agency," and the simultaneous or subsequent efforts of HEW to ensure that "health" becomes a distinct and separate agreement administered by HEW and its foreign counterpart.

The NSF's international programs budget was $15 million for FY 1979. Of this, $6.7 million was for cooperative science programs; $3.3 million for international scientific organizations; $4 million in the Special Foreign Currency Program; $0.6 million for the United Nations Conference on Science and Technology; and $0.6 million for foreign travel.

As of July 1979 there were 37 countries with which the NSF had or supported official arrangements: formal bilateral science and technology agreements with 18 countries, and one, West Germany, to be added later in 1980; nine countries where the NSF supports formal inter-Academy exchanges through the United States National Academy of Sciences; and ten Joint Commissions for Economic Cooperation. There is some overlap, so that there are actually 29 unique countries involved in these arrangements. In addition, there are informal arrangements with ten countries (Table 64). Australia, France, Italy, Japan, Switzerland, the USSR, and New Zealand are the most advanced in overall terms, although they are not equivalent in scientific contributions. The others are, for the most part, the Communist States of Eastern Europe and the developing countries with varying economic status, scientific capability and potential.

According to NSF's data (Table 15 in Chapter II) the principal foreign country recipients of United States dollar funding for research and development are Canada, the United Kingdom, the Philippines, West Germany and Israel. Of these countries, according to State's data, West Germany and Israel have specific formal scientific agreements with the United States. The United Arab Republic also has such an agreement and receives substantial support, but primarily through the Special Foreign Currency Program (SFCP).

There is one premise which is almost axiomatic: a bilateral arrangement at the Heads of State or Cabinet level will remain *ad infinitum.* Termination may be subject to many awkward political interpretations. The only course is to slow down activity. An agreement at a scientific institutional level, even if governmental, is more flexible and can be evaluated by a peer group, modified or even terminated if mutual benefit no longer exists.

There are no stated criteria for those bilateral scientific arrangements which are established through diplomatic channels. It is usu-

Table 64.—National Science Foundation and International Arrangements

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Bilateral Science and Technology Agreements:

- Argentina
- Australia
- Brazil
- China (Taiwan)
- France
- Greece
- Hungary
- India
- Italy
- Japan
- Korea
- Mexico
- New Zealand
- Poland
- Romania
- Spain (State/AID funded)
- Switzerland
- USSR
- West Germany (Pending)

Formal National Academy of Science Inter-Academy Exchanges (NSF supported):

- Bulgaria
- Czechoslovakia
- German Democratic Republic
- Hungary
- People's Republic of China
- Poland
- Romania
- USSR
- Yugoslavia

Joint Commissions for Economic and/or Scientific/Technical Cooperation:

- Brazil
- Egypt
- India
- Iran
- Israel
- Jordan
- Mexico
- Saudi Arabia
- Tunisia
- USSR

Informal Arrangements (NSF Supported Activities):

- Chile
- Colombia
- Costa Rica
- Indonesia
- Malaysia
- Nigeria
- Peru
- Philippines
- Thailand
- Venezuela

Source: NSF, 7/79.

ally after the official signing that the appropriate substantive agency tries to develop a program and seek resources (both human and fiscal) to execute the agreement. Countries which are potential candidates for government bilateral agreements are those where we have had extensive Special Foreign Currency Programs (SFCP). Once the excess currency diminishes, a continuing relationship usually will take the form of a bilateral agreement. This occurred in Israel when the United States-owned Israeli funds were depleted in 1973. Both governments agreed to establish a United States-Israel Binational Science Foundation by a contribution of $60 million equivalent in Israeli pounds for collaborative research in all areas of science. United States Special Foreign Currency Program funds are now also depleted in Yugoslavia and Poland; United States bilateral health agreements have been signed with these two countries.

A fact, which seems to remain submerged in the enthusiasm of developing these international arrangements, is that the projects require funding which is often not available within existing budgets of United States agencies or of their foreign counterparts. Usually the United States agencies do not seek specific dollar appropriations and either try to subsume the activities within their domestic budgets or look for other sources of either dollar funding, such as the Agency for International Development (AID) or non-dollar funding within the Special Foreign Currency Program. If the projects are of a technical assistance nature, AID is a potential source for funding; but the nature and extent of the project must fall within priorities established by agreement between AID and the other country. This agreement can exclude those projects not consistent with AID's mission. SFCP funds are used by the National Institutes of Health and other agencies but the projects must have some demonstrated value to both the United States and the other country.

United States Bilateral Health Agreements

The Department of Health, Education, and Welfare may participate in an overall bilateral governmental science and technology agreement, may execute a health agreement within the context of a broader more general governmental agreement, or may have a separate distinct bilateral health agreement.

United States bilateral arrangements which are either specifically for cooperation in health or which include health as a component, are with:

Argentina*
Australia*
Egypt*
Federal Republic of Germany
France
Hungary
India*
Iran*
Israel*
Italy
Japan
People's Republic of China
Poland
Republic of China (Taiwan)*
Romania
Spain*
USSR*
Yugoslavia

To these must be added a Joint Statement for a United States-Mexico Health Initiative signed on April 6, 1979 by Julius Richmond, Assistant Secretary for Health, HEW; Mario Calles Lopez Negrete, Undersecretary of Health, Ministry of Health and Wel-

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* Registered as treaties.

Secretary Califano and Health Minister Qian sign the U.S.-People's Republic of China protocol. Standing: left at end, **Dr. Thomas Malone, Deputy Director of the National Institutes of Health;** behind United States flag, **United States Ambassador to China Leonard Woodcock;** fifth from right, **the PRC Ambassador to the United States, Ch'ai Tse-min (1979). (Courtesy of the National Institutes of Health)**

fare, Mexico; and Hector Acuna, Director, Pan American Sanitary Bureau. At the Assistant Secretary level, the United States, Canada and the United Kingdom also hold informal tripartite meetings to discuss areas of mutual interest. Thus, the HEW and PHS involvement may vary considerably in scope and responsibility for the countries listed. However, a formal bilateral health agreement usually has an extensive coordinating mechanism, a joint committee, a number of working groups, and lacks specified dollar funding in HEW appropriations. In contrast to these formal cabinet-level governmental agreements are the bilateral *quid-pro-quo* technical arrangements of the National Library of Medicine described in Chapter II, pages 76–82. The NLM arrangements have been and continue to be effective and productive in quantifiable terms and have withstood the test of time; the oldest arrangement dating back to 1968.

Of the five countries receiving the major portion of NIH research dollar grant and contract funds, Canada, Israel, the United Kingdom, Italy, and Sweden, two—Italy and Israel—have health/biomedical research agreements involving NIH. The health agreement with Israel was signed by HEW Secretary Patricia Harris and Israeli Minister of Health Eliezer Shostak on January 29, 1980. Because NIH funding involves stringent peer-review, one assumes that NIH monies from the United States go to the most expert of foreign investigators.

There have been examples of countries approaching the United States for bilateral agreements. The staff of the Embassy of the Federal Republic of Germany in Washington discussed with HEW Assistant Secretary of Health Charles Edwards a formal bilateral agreement in health between HEW and the Federal Ministry of Youth, Family, and Health which has major responsibility for health services delivery in Germany. Dr. Edwards' view was that informal scientist-to-scientist collaboration was preferred and there appeared to be no scientific advantage in a formal agreement. However, in May 1978, the Parliamentary State Secretary of the Ministry of Research and Technology renewed the suggestion of cooperation in biomedical research and technology. The Germans favored a political umbrella to expand the scientist-to-scientist cooperation. This ultimately resulted in a formal agreement signed at the HEW/Ministry level with delegation of responsibility to the PHS with the NIH being the principal agent for the research area.

The Ministry of Research and Technology does not represent in Germany the same community that HEW does in the United States. For example the German Federal Ministry for Youth, Family and Health, the Federal Ministry for Education and Science, the German Research Society, the Max Planck Society, and individual German states all are involved in support of biomedical research. This asymmetry of organizational structures from one country to another may present some awkwardness in developing programs and assigning responsibilities.

I have selected for a detailed presentation three governmental bilateral agreements which differ in significant ways:

1. United States-Japan—An agreement between two scientifically advanced allies.
2. United States-USSR—An agreement between two politically antagonistic countries with uneven scientific and technological capabilities and uneven ease of access to scientists.
3. United States-Egypt—An agreement between an advanced and a developing country.

United States-Japan Cooperative Medical Science Program

State/HEW Relationships

The first United States-Japan Agreement on Scientific and Technical Cooperation in 1961 was administered for the United States by the National Science Foundation. The Agreement included cancer research as an area for cooperation, and a Panel was established and chaired by the National Institutes of Health for the United States side. In January 1965 when President Johnson and Prime Minister Sato of Japan agreed to increase cooperative biomedical research efforts, a United States-Japan Cooperative Medical Science Program was formalized with special emphasis on important health problems in Asia. The regions include the Republic of Korea, India, and Pakistan and other adjacent nations in the broad Pacific basin. State and HEW then signed a Memorandum of Understanding on the conduct of the program. State was to be responsible for the foreign policy and foreign relations aspects, and HEW the scientific conduct of the program.

Each Government appoints biomedical scientists who constitute the United States-Japan Cooperative Medical Science Program Committee. The United States delegation to this Joint Committee is appointed by State, with the Directors of the Bureau of Oceans and International Environmental and Scientific Affairs of State and of the National Institutes of Health (or their designees) serving on the delegation. There are panels for each disease category and the United States members are appointed by the Public Health Service after notification to State. State funds the travel and per diem of the United States delegation. All other funding for projects, panel member participation, and secretariat are provided by the Public Health Service. In the United States, the operational aspects of the program are delegated to HEW; in Japan, the program activities are the responsibility of the Ministry of Health and Welfare and the Ministry of Education.

United States-Japan Joint Committee

The Joint Committee has met annually since 1965. Cholera, leprosy, malnutrition, parasitic diseases (schistosomiasis and filariasis) tuberculosis, viral diseases (rabies, dengue-hemorrhagic fever, and other selected arboviral diseases) and selected health effects of environmental pollutants were chosen as the subjects for research. Each side maintains a separate secretariat. For each disease category, there is a ten-member joint panel with five scientists from each country. Research, conferences and exchange of scientists constitute the program. Collaboration may include scientists in third countries as well as international organizations.

Dr. Richard Krause, Director, National Institute of Allergy and Infectious Diseases, testified before the House Subcommittee Hearing on Appropriations that in 1976 NIH would be spending $5.3 million for the United States-Japan Program compared to $6.6 million in Fiscal Year 1975 and $7.2 million in Fiscal Year 1974. No official funding estimates were available from the Japanese and a comparison is difficult. For example, the Japanese Ministries of Education and of Health and Welfare provide direct grants which do not include personnel costs. In the United States, the personnel costs account for 50–80% of the grant funds. The United States also provides indirect costs. The Japanese grants do not provide for total costs which are allowed through institutional budgets. Dr. Krause estimated that Japanese direct grants were thought to be about $500,000 in calendar year 1976. He believed that this was comparable when one took into account gross national product, population, and percent of the national budget devoted to science and technology. (*8*)

Each panel prepares an annual review which is then examined by the Delegation and by the Joint Committee. The United States and Japan each support the cost of its own scientific projects, and neither funds research or fellowships to individuals of other countries. Grant funding provided by the United States for these various programs (1967–76) totals about $52.5 million with approximately $9 million for cholera, $7.5 million for leprosy, $7.6 million for tuberculosis, $7.2 million for viral diseases, $11.3 million for parasitic diseases, and $9.9 million for malnutrition. This excludes funding from the National Institute for Environmental Health Sciences. Dr. Krause cited accomplishments in tuberculosis and a possible new approach to the treatment of cancer by giving BCG vaccine to cancer patients. A detailed description of the Cooperative Program for 1970–75 has been summarized (*9*) and another five year report (1975–80) is under preparation. Table 65 presents the funding by disease category for FY 1978.

Organization and Evaluation

There exist a number of arrangements between United States Public Health Service agencies and Japan. Each is dependent on the mutual interests and responsibilities of the institutions in both countries. For example, the National Cancer Institute and the National Eye Institute have arrangements with the Japan Society for the Promotion of Science. The National Library of Medicine collaborates with the Japan Information Center for Science and Technology.

Table 65.—National Institutes of Health Funding United States-Japan Cooperative Medical Science Program (FY 1978)

Disease Category	Grants		Contracts	
	No.	($000)	No.	($000)
Cholera	16	$834	4	$309
Environmental Mutagenesis and Carcinogenesis[1]	48	3,850	8	1,500
Leprosy	6	577	3	230
Malnutrition[2]	12	1,072	1	19
Parasitic Diseases	26	1,676	4	254
Tuberculosis	4	261	2	134
Viral Diseases	6	745	0	—
Totals	118	$9,015	22	$2,446
		$11,461		

[1] Supported by NIEHS ($5,350,000).
[2] Supported by NIAMDD and NICHD ($1,091,000).

Note.—All others supported by NIAID ($5,019,910).

Periodically the question is raised as to whether there should be an overall United States-Japan Cooperative Program in Health. One of the reasons proferred is that this would allow for greater coordination. However, the scientists involved do not necessarily subscribe to this point of view. There is a mismatch at the Departmental/Ministry levels of the two governments. For example, the Ministry of Health in Japan is not comparable to the Department of Health, Education, and Welfare in the United States. A formal agreement in health between the two governments may lead to a Japanese consortium or perhaps the Japanese Foreign Office would become the lead agency.

There has also been the suggestion that all the United States-Japanese agreements for cooperation in science and technology be subsumed under a broad umbrella agreement. An examination of the scientific and technological cooperation which exists between Japan and the United States was conducted by a Binational Review Panel in 1975. (*10*) The co-chairmen were nongovernmental, although each was intimately knowledgeable about government affairs in his country: Dr. Saburo Okita, President of the Overseas Economic Cooperation Fund, Chairman of the Japan Economic Research Center, and Special Advisor to the International Development Center of Japan, and Dr. Edward E. David, Jr., for the United States, then Executive Vice President for Research and Development, Gould, Inc., and former Science Advisor to the President of the United States.

The members of the Executive Committee of the Binational Review Panel were Dr. Tatsuoki Miyajima, Commissioner of Japan's Atomic Energy Commission; Dr. Junnosuke Nakai, Professor, Tokyo University; Dr. Robert W. Hiatt, President, University of Alaska and former Counsellor for Scientific Affairs at the United States Embassy in Tokyo; and Ambassador T. Keith Glennan, former representative to the International Atomic Energy Agency, former President, Case Institute of Technology, former Atomic Energy Commissioner and the first Administrator of the National Aeronautics and Space Administration.

The general conclusions from this review were that tangible benefits had accrued to both countries and that as further opportunities occurred the cooperation should be expanded. The suggestion was also made that the two governments agree on one or more joint research and development efforts. Such an undertaking would require Japanese and United States staff to work together, and each country would contribute manpower and money relative to its interest and anticipated benefits. The present situation differs in that independent research is performed and information on the status and results of these separate research and development efforts are reported and exchanged. The Binational Review Panel concluded that it was not necessary to have a comprehensive "formal umbrella agreement." The Panel did not believe that absolute symmetries are required in the methods each government employs to coordinate its own participation in the cooperative programs; a flexible structure was preferred which could adapt to changing priorities. The Panel did recommend an independent review of the cooperative programs every three to five years to be sure they are current and responsive to needs.

One observation of special significance was that the most effective cooperation is in subject areas where the scientific and technological sophistication of the two countries is approximately equivalent. This would be a natural assumption, and the facts verify it. The Panel did suggest some 20 new broad directions, including some pertinent to health: environmental and occupational health, germ plasm exchanges for food and forage crops, safety evaluation of new drugs and food additives, science and technology policy, technology assessment and incentives for innovation, methods for rehabilitation of handicapped persons, and development of advanced technological medical tools.

In its examination of the Cooperative Medical Science Program, the Review Panel recommended that the composition of the committee and the rotation of members be broadly representative of medical fields which both sides judge to be significant areas for cooperation. The Panel also recommended that cooperation now be extended beyond those diseases and health problems of Asia which had received attention during the past ten years. They recommended continuing and expanding those programs which clearly merit additional support; but they believed that beyond this the United States-Japanese medical cooperation should address the broad area of significant health problems common to these two highly-industrialized societies. Illustrative areas were medical problems associated with environmental and safety factors, such as exposure to contaminated air and water, reactions to excessive noise levels, visual strain, tensions in fast-paced societies, and boredom of repetitive operations. Also, the development of sophisticated medical tools such as lasers, synthetic cardiovascular and renal devices, and cooperative projects requiring extensive testing might be included. The choice of specific projects for cooperation would remain in the hands of appropriate authorities, but the areas mentioned represent fields which might yield substantial benefits if pursued cooperatively. Another interesting comment of the Panel related to developed/developing world cooperation. Since both countries had experience in advising developing nations on how best to enhance their capabilities in science and technology, representatives of the two governments might cooperate to exchange experiences and ideas in this field. (*11*)

United States-USSR Agreement on Cooperation in the Field of Medical Science and Public Health

Informal Exchanges (1954-58)

During the Second World Congress of Cardiology in Washington, September 1954, Professor Boris V. Petrovsky (then a member of the Academy of Medical Sciences and currently the Minister of Health in the USSR) and Major Paul W. Schafer of the Medical Corps of Walter Reed Hospital, discussed an exchange of medical films between the USSR and the United States. This resulted in an exchange of notes, dated at Washington, March 17 and September 5, 1955, between the United States Acting Secretary of State and the Ambassador of the USSR—registered under the Treaties and

Other International Acts (Series 3409)—"Exchange of Medical Films Agreement between the United States of America and the Union of Soviet Socialists Republics."

The Acting Secretary of State said that the United States was prepared to participate in an exchange of medical films with the USSR and a list of United States films was attached to his note for Soviet review. He suggested the Soviets present a list of United States films they desired and submit a list of Soviet films which they would make available. The Acting Secretary ended his note with a statement on procedures: "The films made available by each of the governments during the six-month period will be comparable."

On September 5, 1955 the Soviet Embassy responded that they would accept for review the American medical films listed in the Department of State note of March 17. In turn, the Embassy suggested that Soviet medical organizations were prepared to submit Soviet medical films for American review. The Soviet Ambassador ended his note with the hope that such an exchange of medical films "will promote the extension of scientific and cultural ties."

In January 1956 there was a severe outbreak of poliomyelitis in the USSR. The Soviet government requested permission to send a group of specialists to study our research and control of this disease. They came and learned of the work of Dr. Sabin and Dr. Salk. The United States sent Salk vaccine to the USSR between 1957 and 1960 for over 12 million children. In 1958, the USSR began using the Sabin attenuated live vaccine and inoculated over 91 million persons between 1959 and 1963. It was largely due to these United States contributions that poliomyelitis ceased to be a major disease in the USSR.

For 11 years (1956–67), unofficial delegations went from the United States to the USSR in microbiology, epidemiology, rehabilitation and public health; unofficial delegations from the USSR to the United States were concerned with poliomyelitis and public health. (*12*)

Formal Exchanges (1958-72)

The United States Department of State proposed a formal program of exchanges. An Agreement Between the United States of America and the Union of Soviet Socialist Republics on Exchanges in the Cultural, Technical and Educational Fields was signed on

January 27, 1958, by United States Ambassador William S. B. Lacy and USSR Ambassador G. N. Zaroubin. Included were specific sections on exchange of medical delegations, medical lecturers, medical journals, and medical films. The basic government-to-government agreement underwent review and modifications biennially.

The health section of this agreement was delegated to HEW and its counterpart, the Soviet Ministry of Health. During the 15-year period from 1958 to 1972, the "official" health exchanges included 70 delegations of specialists, amounting to about 200 individual scientists. Seven joint scientific congresses were also sponsored. This period of formal exchange has been described by Dr. Theodore Cooper (*13*) as a "get acquainted" stage. Dr. Roger Egeberg (*14*) considered the program useful for information exchange and orientation; but the United States and USSR exchanges of delegations and individual scientists were unrelated. They were not part of an organized plan of cooperation, and were of short duration. They did not lead to a continuing in-depth examination of a particular disease or public health problem.

Informal discussions between Dr. Paul Ehrlich and Dr. Dimitri Venediktov at the time of various WHO meetings centered on the desire to improve the existing exchange arrangements. This prepared the way for an HEW proposal to the Soviets for a revision of the program to make it a long-range continuing collaboration on health problems of mutual concern. Both countries would agree on subjects of mutual interest and develop jointly a work plan for a coordinated research effort. Out of this concept grew the need to have high level overall planning and direction of the new programs. This was the start of the United States-USSR Joint Committee on Health Cooperation.

Dr. Egeberg, as HEW Assistant Secretary for Health and Scientific Affairs, delivered a letter to the Soviet Minister of Health, Dr. Boris V. Petrovsky, suggesting this new approach to the health exchange program. Subsequently, Secretary Elliot Richardson of HEW and Minister of Health Boris Petrovsky exchanged letters on February 11, 1972. They confirmed that the three initial areas of cooperation would be cancer, heart disease, and environmental health and established the Joint Committee which met in March 1972 prior to the May 1972 Summit Meeting. This provided a basis for the formal United States-USSR Joint Agreement on Cooperation in the Field of Medical Science and Public Health signed by Secretary of State William Rogers and Minister of Health Petrovsky during the Summit Meeting of May 1972.

The Summit and Science and Technology Agreements (1972–1974)

The Basic Principles of Relationships signed by President Richard Nixon and President Nicolai Podgorny during the 1972 Summit Meeting in Moscow included Point B: "The two sides consider it timely and useful to develop mutual contacts and cooperation in the fields of science and technology. Where suitable, the United States and the USSR will conclude appropriate agreements dealing with concrete cooperation in these fields."

In three years, 11 agreements had been concluded, all in the course of Summit meetings.

1972—Science and Technology; Space; Environmental Protection; and Medical Science and Public Health.

1973—Agriculture; Atomic Energy; Oceanography; and Transportation.

1974—Artificial Heart Research; Construction; and Energy.

From mid-1972 until the end of 1974 over 140 joint projects in more than 60 technical areas were agreed upon. The USSR also signed 26 "protocols" for cooperation with United States companies under the Science and Technology Agreement.

Official Medical Science and Public Health Agreement (1972)

The original United States-USSR Agreement on Medical Science and Public Health was devoted to cardiovascular diseases, malignant neoplasms, and environmental health. Arthritis was included in 1973 and influenza and acute respiratory diseases in 1974. Within these five areas 23 specific projects were defined. In mid-1974 a separate agreement on the artificial heart was signed by Secretary of State Henry Kissinger and Minister Andrei Gromyko* and subsequently one on schizophrenia. All of these agreements have been registered as treaties.

Estimated expenditures for these agreements are $3,971,900 for the first five years (1972–77) and $3,483,000 for the two-year period 1977–79. Table 66 provides the cost distribution by the HEW funding agent. This does not represent the full cost of these agreements.

As the HEW Assistant Secretary for Health in 1975–76, with responsibility for United States coordination for the Health Agree-

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* This was an area which State was eager to pursue and HEW was not. The State decision prevailed. (Personal communication, Dr. Paul Ehrlich.)

Table 66.—United States-USSR Agreement on Cooperation in Medical Science and Public Health—Estimated Public Health Service Costs by Participating Agent

Participating Agent	1972–1977 ($)	1977–1979 ($)	1972–1979 Total ($)
National Institutes of Health:			
Cancer	1,000,000	600,000	
Heart	1,115,000	1,100,000	
Artificial Heart Research	[1] 99,000	468,000	
Environmental Health	637,400	275,000	
Arthritis	595,700	900,000	
Fogarty International Center [2]			
Individual Exchange	600,000	100,000	
			7,490,100
Alcohol, Drug Abuse, and Mental Health Administration:			
Mental Health	10,000	25,000	
			35,000
Center for Disease Control:			
Influenza	14,800	15,000	
			29,800
Total			$7,554,900

[1] 1974–1977.

[2] For Office of the Assistant Secretary for Health.

ment, Dr. Theodore Cooper noted the mismatch between the United States and the USSR in the organization of biomedical research. He considered that this asymmetry had been reduced in part by creating a United States-USSR Joint Committee for Health Cooperation responsible for setting administrative guidelines and identifying priorities. In 1976, there were 27 specific joint research projects, and the United States and USSR agreed that concentration on these would be preferable to expanding into other areas. The lack of full communication was cited as the most serious problem in the initial stages of the collaboration. A direct telex link between HEW and the USSR Ministry of Health established in 1973 improved communications. Dr. Cooper noted that the fundamental differences in the laws of the United States and the USSR compounded difficulties, and the rights to intellectual property were illustrative.

Dr. Cooper also commented that not all administrative problems had been solved in the execution of these programs. There was indecision on the Soviet side in making a commitment. Restrictions under which USSR scientists work proved burdensome for Americans, such as shortages of equipment and supplies, and difficulty in obtaining photoduplication of scientific material. All of these interfere with the successful conduct of a research project and United States exchange scientists must be willing and prepared to cope with them. (*15*)

One of the fundamental problems, according to Dr. Cooper, was the misunderstanding about the intent and objectives of the United States-USSR program. In his opinion, the fact that funding for these activities comes from the research budgets of United States institutions automatically means they are of interest to our domestic scientists. A change which he suggested would be beneficial not only to the United States but to the USSR, would be more contact for United States scientists with Soviet scientists outside the immediate jurisdiction of the USSR Ministry of Health. The United States wished to have access to Soviet medical institutions in southern and eastern USSR.

Some of the research which would be particularly beneficial to the United States has not been agreed upon by the Soviets due to internal Soviet legal constraints and the Soviets' attitude that they

Dr. Julius B. Richmond, Assistant Secretary for Health, HEW and Dr. Dimitri Venediktov during a meeting of the US-USSR Joint Committee for Health Cooperation (1977). (Courtesy of the National Institutes of Health)

would have little to gain in those areas. Thus, the United States tried to find areas and methods of cooperation where both can agree to work together for mutual benefit. Specific accomplishments cited by Dr. Cooper were protocols on drug trials which create a data pool of greater reliability than could be done unilaterally with a similar expenditure of national resources. Similarly successful were joint investigations into the causes of cardiovascular disease which required coordinating laboratory standards, techniques, and methodology for determining levels of blood lipids and pollutants in their relationship to arteriosclerosis. In environmental health, the scientists are evaluating each other's methods of determining permissible levels of certain environmental pollutants. A uniform methodology has also been developed for evaluating different types of treatment for rheumatoid arthritis and systemic lupus erythematosus in adults and children. It was concluded that joint research of this kind leads toward better and more effective treatment for patients anywhere.

Scientific Merit and Evaluation

United States-USSR bilateral science agreements, including the Health Agreement, have been evaluated a number of times. Those which have been published form the basis of the assessment which follows.

On March 28, 1977 Dr. Frank Press, Science Advisor to President Carter, and Director of the Office of Science and Technology Policy (OSTP) requested the National Academy of Sciences to review the US-USSR Agreement on Cooperation in the Fields of Science and Technology (S&T). The Board of International Scientific Exchange (BISE), Commission on International Relations of the National Research Council, conducted this review which was part of an evaluation of the benefits from this agreement and of a determination on the form of the renewal. This agreement was due to expire on May 24, 1977.

The BISE Review Panel recommended that the Agreement be continued with some modification in structure and procedure to make it more cost effective to the United States. Management aspects addressed related to foreign travel expenses, the conduct of research and development, and the strengthening and centralization of operating staff. One of its recommendations worth noting, although it appeared sixth in the list, was that National Science Foundation funds for this Agreement should appear as an identifiable item in the NSF budget. The Panel noted costs for domestic research and for R&D under this Agreement. The Panel suggested that there was substantial NSF cost such as preliminary exploration of projects; provision of interpreters and travel funds for Soviet scientists in the United States; translation, publication and dissemination of information, which made these USSR-related projects more costly than comparable domestic research. The Board suggested that technical (peer) review of the substance be made within a more global analysis of the other benefits in order to guide initiation of joint research and development.

The BISE emphasized that its report was limited in terms of time and scope and was not to be considered as an assessment of the overall status of US-USSR technical cooperation of which the S&T Agreement is only one segment. Article 4 of the Science and Technology Agreement is concerned with agreements between United States firms and Soviet entities and this did not come under the BISE purview and review. (*16*)

A 1977 HEW overall evaluation of its health agreement with the USSR for the United States Federal Coordinating Council for Science, Engineering and Technology indicated that many of the participating scientists felt that the "needs of the United States Government are, in the short run, being served more fully in the political arena than they are in the scientific arena." However, this is a political judgment made by scientists, and it would be preferable to know how and whether foreign policy experts can document such progress. The scientists queried estimated that, on a longer-term basis (unspecified), the needs of the United States will be served both scientifically and politically. They also observed that there is technological disparity between the two countries and United States-USSR collaboration has and will continue to cause a flow of technology from the United States to the USSR.

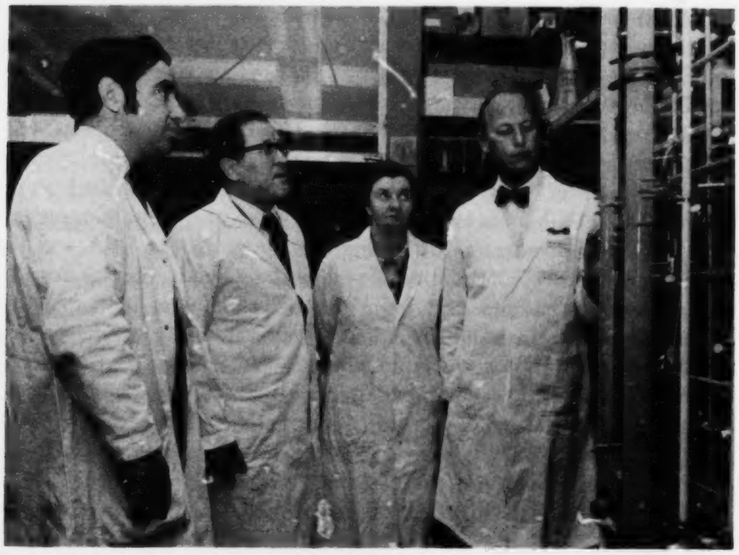
Some examples of accomplishment can be given. Cancer was one of the original areas identified for collaboration, and progress has been made in the joint cancer program. From 1972 to 1979, a total of 171 anticancer and potential anticancer agents were exchanged. Sixty-six American compounds (46 clinical drugs and 20 pre-clinical) were given to Soviet investigators and American scientists received 105 Soviet products (17 clinical drugs, 10 pre-clinical agents and 78 preparations for screening for potential anticancer activity). The Soviet studies of the American drug, 5-(3,3-dimethyl-1-triazenyl)-1*H*-imidazole-4-carboxamide (DTIC), resulted in the USSR Ministry of Health Pharmacological Unit recommending DTIC for practical use. Clinical studies are being carried out in the United States on the Soviet drug Ftorafur. A license for the manufacture of Ftorafur in the United States was granted by the USSR to Bristol Laboratories of Rochester, New York.

In May 1977 a Joint United States-USSR Monograph on "Methods of Development of New Anticancer Drugs" was published in English and Russian with 11 chapters contributed by United States authors and 10 by Soviet authors. (*17*) A second joint monograph "Experimental Evaluation of Antitumor Drugs in the USA and the USSR and Clinical Correlations" will be published. Management of certain cancers has been the topic of other endeavors by the United States and the Soviets which indicate that combining chemotherapy and immunotherapy may show promise. Work has also been done in cancer virology, cancer epidemiology, cancer control, and genetics as it might relate to the development of cancer. In 1979, agreement was reached for cooperation on the pathologic study of cancer of the breast and the urinary bladder.

In general, United States-USSR cancer collaboration over the past seven years has been characterized as mutually beneficial in part but not totally satisfactory. The scientist-to-scientist contact seems effective with Soviet scientists benefiting more by working in United States laboratories than United States scientists would in USSR laboratories. There appears to be consensus among American specialists in cancer therapy that there have been substantial clinical benefits for Soviet cancer patients since the United States-USSR Agreement became effective.

An example of cooperation in cardiovascular disease research is ischemic heart disease. The United States uses a surgical technique whereby a blood vessel graph bypasses a narrow or occluded segment of a coronary artery. This procedure is little used in the USSR. Some medical approaches used by the USSR are unfamiliar or unknown to United States heart specialists. Thus, a comparative study is being developed on how certain heart patients are treated in the two countries. Pilot studies were conducted in both countries from 1974 to 1975 and final protocol designs were agreed upon for definitive joint study. Currently, patients are being recruited who will be examined once a year for five years to evaluate the respective therapies.

Biomedical communications was identified as a potential area for cooperation when Minister of Health Boris Petrovsky came to the United States in 1972 and included a visit to the National Library of Medicine. Minister Petrovsky requested that Professor Yuri Li-



Left to right: Dr. Robert Levy, Director of the National Heart, Lung, and Blood Institute, National Institutes of Health; Professor Anatoli Klimov; and Professor Helena Gerosimova examine chromatographic apparatus for separating plasma apolipoproteins. With them in the lipid metabolism laboratories at the National Institutes of Health is Dr. Donald Fredrickson, NIH Director. The two Soviets were the first to begin a specific project on the pathogenesis of arteriosclerosis under the US-USSR Agreement for a Cooperative Health Program (1975). (Courtesy of the National Institutes of Health)

sitsyn, his newly-appointed Director of the All-Union Research Institute of Medical and Medico-Technical Information (VNIIMI) spend a period of time at the National Library of Medicine. In a three-week visit in 1973, Professor Lisitsyn had detailed discussions at the policy, program and operational levels. In 1976, at the invitation of Dr. Dimitri Venediktov, USSR Deputy Minister of Health, a United States Delegation consisting of Dr. William Hubbard as Chairman; Dr. Martin Cummings, Director of the National Library of Medicine; Mary E. Corning, Assistant Director for International programs, NLM; and Dr. Vladimir Slamecka, Director of the School of Information and Computer Science, Georgia Institute of Technology, visited the USSR to explore further whether cooperation in biomedical communications could be developed. During the course of that visit a Memorandum was prepared which was subsequently signed by both sides in January 1977.

The Memorandum recommended the establishment of a Joint Working Group to implement specific projects and to consider future prospects. Projects for immediate implementation were the exchange of biomedical literature, exchange of people, and the provision of interlibrary loans. Projects which could be developed on an exploratory and pilot basis included (1) toxicology and information exchange in pharmacology and (2) vocabulary development and nomenclature in public health and social hygiene. Projects which would be deferred were those relating to computer and technological activities due to the disparity of the capabilities of the two institutions. The NLM had indicated it would collaborate with VNIIMI concerning NLM's computerized information storage and retrieval system consistent with NLM's other international bilateral arrangements. However, it would appear that VNIIMI is not yet technically ready.

Two-and-one-half years after the signing of this Memorandum, the Joint Working Groups met in March 1979 for the first time to develop implementation plans. Agreement was reached on increased exchanges of materials, mechanisms for the transmission of interlibrary loan requests, and the NLM offer to receive a member of VNIIMI to engage in a work/study/training program. This person would index and classify Soviet literature in return for training in the administration and management of modern library technology. The latter awaits the action by the Soviet side to designate an individual.

This series of events has taken place over a seven-year period, of which at least six years were consumed by Soviet inaction; but at the same time, the USSR did not wish to delete this item from the cooperative program. NLM and VNIIMI are in different stages in their development of information services and products. The NLM began operations of its computer-based information storage and retrieval system (MEDLARS) in 1964 and in 1971 moved to a national (and international) online network. The USSR is now developing its information system called MEDINFORM in collaboration with the Communist States of Eastern Europe and Cuba whereby each one of the participating countries is assigned a particular function relating to different facets of an overall medical information system.

Inter-Academy Exchanges

Distinct from the Agency bilateral arrangements is the United States-USSR Exchange Program under the United States and USSR

Academies of Science. The USSR Academy of Science is governmental and the United States counterpart is nongovernmental. Since the beginning of this program in 1959, about 400 United States and 400 Soviet scientists have participated in lecture or survey visits lasting one month, or conducted research from three to twelve months, in each other's country. Medical science has been a very small portion of the program, but it is pertinent to see how a National Academy of Sciences/National Research Council (NAS/NRC) Panel conducted a two-year study and evaluated this Exchange Program in 1977. (*18*)

These exchanges in science and engineering had four goals: to establish individual and institutional contact; to learn about Soviet strengths and goals; to contribute to improved United States-USSR relations; and to achieve at a later date the "normalization" of scientific contacts between the two countries. The NAS/NRC Panel concluded that the program had "striking success" in meeting the first three goals, but that normalizing scientific contacts between the two countries still presented serious problems.

The NAS/NRC Panel also identified seven more general objectives:

1. Building world science.
2. Building United States science.
3. Keeping abreast of Soviet science.
4. Fostering the international scientific community.
5. Fostering solutions to global problems.
6. "Political" and cultural objectives.
7. Economic objectives.

The scientists agreed that items 4, 3 and 6 (in that order) had been notably successful. Building world science and building United States science (items 1 and 2) were less successful, and items 5 and 7 (finding solutions to global problems and enhancing economic and trade relations) were considered of marginal importance to the Interacademy exchange program.

The Panel concluded that the program was and is worthwhile, and that it has survived despite competition with the present numerous intergovernmental exchange programs. According to the Panel, the matter of scientific benefits—the "purely scientific achievements"—are of less significance for the United States than building the world scientific community, keeping abreast of Soviet science, and political and cultural effects. It concluded that the United States has, on the whole, been teaching the Soviets more than we are learning from them; but the Panel did not consider significant equal benefit to be a criterion for the success of the program. It expected the future to show a shift toward greater equality. The basic attitudes of American scientists are affected by limitations on scientific freedom in the USSR, but the Panel believed the program may ameliorate restrictions on Soviet scientists.

Only 2% of the United States participants, and even fewer Soviet participants, were classified in the biomedical sciences. This was because the NAS had no specific contacts with the Soviet Ministry of Health or its research arm, the Academy of Medical Sciences. Approximately 30 United States medical scientists participated in exchanges of various kinds with medical scientists and organizations in the Soviet Union. The Academy report said there was general agreement among these medical scientists that the USSR was lagging far behind in various biological and medical sciences, with exceptions possibly in membrane biology, the physics and chemistry of proteins, gerontology, and some aspects of radiation theory. The respondents suggested that the hierarchical structure and politicization of Soviet science prevented communication among Soviet scientific institutions, and that young Soviet scientists had difficulty in traveling and were subject to political considerations relating to their scientific work.

The NAS/NRC Report continued to say that American scientists had seen some significant research opportunities in epidemiologic studies on major human diseases, such as cancer, heart disease, and some infectious diseases. Thus, there would be some value to large scale clinical trials, drug studies, and the possible use of randomized clinical trials in the study of chemotherapy, radiation therapy, and combined modality therapy in the treatment of cancer. They suggested that visits of one year or longer by young Soviet scientists to the United States would enable Soviet science to be upgraded very rapidly. The human rights issue created a negative aura to the program—restrictions on emigration of Soviet scientists, restrictions on the travel of American scientists within the USSR, and the treatment of dissident Soviet scientists within the USSR.

Two themes recur in any review of a United States-USSR program: (1) scientific or technical advantage given to the USSR; (2) scientific repression and political dissidence. In the NAS/NRC study, almost all the observers queried agreed that the United States holds a superior position in computers, electronics, and chemicals. Therefore, the question was asked whether the promotion of agreements which would permit the Soviet Union to obtain new technology is in the interest of the United States. There seems to be concurrence that technology transfer is clearly one of the major goals of the Soviet Union. The Report concluded that because the Academy exchanges are concerned primarily with fundamental science, they are less liable to introduce technology transfer than some of the bilateral agreements. The Report does recognize, however, that any nation which improves its fundamental science will in all likelihood receive benefits in technology as well.

A distinction was made between active transfer and passive transfer of technology. Active transfers are turnkey factories, licenses with extensive teaching effort, and joint manufacturing ventures. Passive transfers are the sale of products without maintenance or operating data, undocumented proposals, exchanges of literature, and trade exhibits. The Report cited a Department of Defense statement that passive mechanisms do little to transfer technology. Also introduced was the rationale that increased Soviet purchase of equipment from the West has an impact on the Soviet Union both domestically and internationally.

Whether in fact Soviet science could become dependent on our technology is debatable, and debated. The Academy Report again refers to linking academic exchanges with trade relations in the overall United States–USSR involvement. This was viewed as consistent with the policy of the United States toward the Soviet Union to reduce international tensions. The Interacademy exchange, in the Academy's view, presents fewer problems of a political or strategic nature than many other types of contact.

The second question the Academy Report raises, and discusses in some detail, is scientific repression and political dissidence. A middle position is recommended between one extreme of a scientific exchange program which ignores the issue and the other extreme which is so oriented to human rights considerations that all else is ignored. The Academy uses two political factors to justify a middle-of-the-road position: (1) Some types of political restrictions decrease the value of the scientific exchange, and therefore, are legitimate topics for discussion; (2) The existence of the Inter-Academy Exchange Programs is dependent on the support of individual members of the American scientific community, and NAS members in particular.

The Report argues that Western science's defense of access to institutions, personnel, and information is within the context of freedom of research and not a political demand. In spite of these stated misgivings, the Panel's study recommended not only continuing but expanding the program from exchanges to collaborative and joint research projects, joint workshops and symposia, with the National Academy of Sciences as the continued manager of the program. *Ad hoc* travel grants and "seed" money would enable scientists to meet and develop collaboration.

Congressional Review

Congress has also had both a continuing interest and some concern about the United States-USSR agreements. These feelings have been expressed in Hearings such as those of the Subcommittee on International Cooperation in Science and Space of the House Committee on Science and Astronautics held in 1972 shortly after the United States-USSR agreements in science, technology, and health had been signed. (*19*) The General Accounting Office issued a report to the Congress, "A Progress Report on the United States-Soviet Union Cooperative Programs" by the Comptroller General of the United States, January 8, 1975. (*20*) More recently, the Subcommittee on Domestic and International Planning and Analysis of the House Committee on Science and Technology held hearings on November 18–20, 1975 and in 1976 issued Special Oversight Report No. 6 on the United States-USSR Cooperative Agreements on Science and Technology. (*21*) Eleven United States-USSR Cooperative Agreements in Science and Technology were identified under which approximately 150 authorized projects were planned or already functioning.

A summary of the nine recommendations in the Special Oversight Report No. 6 follows:

1. United States-USSR Cooperative Agreements in Science and Technology should be evaluated on the basis of the scientific and technological benefits they yield to the nation.
2. United States coordination and review of the scientific and technological activities of the Joint Commissions should be placed under competent authority within the Executive Branch.
3. Current operational and administrative principles should be provided by the American Co-chairman of the Joint Commissions for the guidance of the executive secretaries and other administrators in the lead agencies and for the participating scientists.

4. All current projects should be critically examined periodically to insure that the science and technology cooperative agreements program as a whole is reciprocal and mutually beneficial and effective.
5. Screen new projects to select those with a high potential for success.
6. Projects which become inoperative through the lack of performance by the Soviet side should, following reasonable requests for compliance, be promptly terminated in a forthright, businesslike fashion.
7. Lead agencies of the Executive Branch responsible for the scientific conduct of the United States side of the scientific agreements should submit requests in the annual budget for adequate funds to carry out commitments.
8. Lead Federal Departments and Agencies should select personnel for Executive Secretary and other staff positions in their own secretariats for those agreements.
9. In keeping with its oversight assignment, the House Science and Technology Committee should receive periodic reports from the Executive Branch on the status of the United States-USSR Cooperative Agreements on Science and Technology.

Recommendations 1, 4, 5 and 6 are concerned with scientific evaluation and merit and would appear unambiguous and relatively easy to apply. However, there appears to be confusion in the process of evaluation. At the operating scientific level, lack of progress or an imbalance in benefit has not always resulted in curtailment, but instead in the assumption that this imbalance will eventually right itself; and, in the meantime, it is assumed that cooperation with the USSR is a national policy and produces political benefits.

Zbigniew Brzezinski, (22) before he became an official of the United States Government in 1977, had written that United States-Soviet relationships are shaped by:

1. domestic developments—national will, resource allocation, politics, internal political-social stability,—and international appeal;
2. power balance, both strategic and conventional;
3. autonomous global and regional developments.

He concluded, therefore, that possibilities for cooperation, competition, and antagonism exist within the United States-USSR relationships. Certainly, all these elements have appeared to various degrees during the course of the Health Agreement. Assessments of cooperative programs vary, depending on the current status at any point in time of the fluctuating power balance between the two countries and shifting domestic and external influences.

It must be remembered that the United States and USSR health and biomedical involvement predates the formal 1972 Agreement and has existed for 26 years. The assessment of these programs should be based on science and health criteria and benefits, and it is the responsibility of the research, information and health communities to do this in rigorous terms. There should also be an independent and more definitive assessment by experts in foreign policy of the diplomatic value of these arrangements. Such independent reviews should eliminate the blurring of criteria wherein individuals intellectually equipped to give opinions on only one aspect are making overall judgments. If the scientist declared clearly and objectively his recommendations on the scientific value and the political expert his foreign assessments, then policy makers have the responsibility to integrate and evaluate the totality of the programs for final decision-making. It is difficult to judge how scientific benefits or losses compare to diplomatic advantages or disadvantages but some logic and criteria should be used in this process. The latest developments in USSR repression of human rights and in the United States cancelling visits of high-level official scientific delegations to the USSR have not yet been sorted out—the least one can say is that restricting scientific collaboration has had no immediate, tangible and visible effect.

United States-Egyptian Bilateral Agreements

Medical Cooperation

On June 14, 1974, President Nixon and President Sadat signed a document entitled "Principles of Relations and Cooperation between Egypt and the United States." In this statement, the two Presidents agreed that their wide-ranging discussions should lead to establishing a broad range of relationships to promote peace. One of the tasks identified was one for the "encouragement of exchanges and joint research in the scientific and technical field." A Joint Cooperation Commission and four Joint Working Groups were established, including one on Medical Cooperation which would assist the government of Egypt "to develop and strengthen its medical research, treatment and training facilities. These efforts will supplement cooperation in certain forms of medical research already conducted through the Navy Medical Research Unit (NAMRU), whose mutually beneficial work will continue."

The United States-Egyptian Joint Working Group on Medical Cooperation met to define areas of cooperation in health services; health manpower and medical education; production of pharmaceutical, biological, and medical products; environmental health; and medical research. A second meeting was held in July 1975 and an agreement was drawn up by the Egyptian Minister of Health and the HEW Assistant Secretary for Health. The "Agreement between the Government of the United States of America and the Government of the Arab Republic of Egypt on Health Cooperation" was formally signed on October 28, 1975 by Secretary Henry Kissinger and Prime Minister Ismail Famii. Article I stated that the two countries would continue to develop a cooperative program, a reference to meetings already held by the Joint Working Group on Medical Cooperation. Article I also stated that cooperation would be subject to the availability of appropriated funds. Resources identified to implement this agreement in Egypt were: materials, facilities, and health manpower to be provided by the United Arab Republic of Egypt; fellowships for training and equipment for research to be provided by the United States. The mechanisms would include exchanges of information, sharing technical experts and consultants, conferences, and training courses.

The Joint Working Group on Medical Cooperation was to be the responsible agent for implementing the health agreement. The parties agreed to "explore" and "to cooperate." The Joint Working Group has had five annual meetings. To the five original areas of activity were added: schistosomiasis; sera vaccines and biological products; casualties in medical emergencies; health services and family planning; cancer; biomedical information; history of medicine and pharmacy; and the Navy Medical Research Unit would be supported in order to continue and expand its activities in the fields of research and training. Subcommittees were established which would meet regularly. For example, the Subcommittee on Biomedical Research would be concerned with policy development, coordination of joint medical research activities, an annual plan of work which would specify agreed upon joint research projects, and the development of an ongoing mechanism to review and evaluate the collaborative research undertaken by the agreement.

The Fifth meeting of the United States-Egypt Working Group on Medical Cooperation, June 1978, included the five subcommittees. In addition, however, the full Working Group agreed to establish task forces on the following:

1. Health service research and development coupled with health planning.
2. Nutrition—in particular, preparations for the International Year of the Child.
3. Repair and maintenance of biomedical equipment in Egypt.

Thus, a superstructure has been created of Working Groups, Subcommittees and Task Forces. However, no appropriated dollar funding is specifically authorized and committed to this United States-Egyptian collaboration in medicine, although some PHS agencies have used appropriated dollar funds. Funding primarily is dependent on the Special Foreign Currency Program (SFCP-PL 480) and dollars under the AID program (AID Commodity Import Loan Program) where the medical and health projects must meet AID's priorities.

Evaluation

A 1977 *ad hoc* review of the United States-Egyptian bilateral health agreements for the Federal Coordinating Council for Science, Engineering and Technology gives both facts and impressions. The report projected a 12-year supply of excess Egyptian currency (SFCP). However, it noted that, if the supply of excess Egyptian pounds were to diminish more rapidly than anticipated and Egypt were withdrawn from the excess currency list in several years, the PHS would not be able to meet its commitments under the Agreement. The depletion of funds is now underway, and there is internal PHS review to determine priorities for the selection of programs to be funded. It is anticipated that the SFCP program will be phased out by 1981.

U.S. scientific evaluators were convinced that the United States-Egyptian collaboration represented a contribution to national security and foreign policy. It is not clear by what criteria this conclusion was reached and perhaps a more definitive assessment should be made by foreign policy experts. Individual United States participants generally concurred that most of the presently agreed-upon activities will be of greater benefit to Egypt than to the United

States. For example: strengthening health organization; transfer of technology; improved health care; monitoring health hazards in the environment; establishing medical information resources in Egypt; and upgrading the Egyptian medical education system. Total HEW expenditures for 1976–78 were about $1.4 million or 9.4% of the total dollar expenditure (AID is the primary contributor) and about $22 million in dollar equivalents or 80% of the total SFCP funds (Table 67). This does not include the 11.5 man-years of HEW personnel involved or the 1.6 man-years of consultants. It has been estimated that HEW has funded approximately 100 projects in the five years of the agreement for approximately $30 million of SFCP funds.

Table 67.—United States-Egypt Bilateral Agreement—Summary of U.S. Federal Funding

Agency	U.S. ($)	SFCP	Total
1976:			
HEW	$466,723	$7,777,729	$8,244,452
Navy	867,000	1,754,767	2,621,767
AID	8,382,000	—	8,382,000
Total	9,715,723	9,532,496	19,248,219
1977:			
HEW	459,375	7,680,000	8,139,375
Navy	1,068,000	1,851,716	2,919,716
AID	—	—	—
Total	1,527,375	9,531,716	11,059,091
1978:			
HEW	476,847	6,725,000	7,201,847
Navy	1,390,000	1,850,000	3,240,000
AID	1,800,000	—	1,800,000
Total	3,666,847	8,575,000	12,241,847
	$14,909,945	$27,639,212	$42,549,157

Observations

The sequence of events in developing these bilateral health arrangements is the reverse of what would ordinarily be accepted as good management. The difficulty would appear to be shared by both the diplomats and the scientists. The diplomats may decide without the concurrence, sometimes without the knowledge, and oftentimes with minimal preparatory work done by the scientific agency; and the scientific agency usually accepts these arrangements with no demur. An agreement is signed and then exploration for potential cooperation is done instead of determining first the topics which can form the basis of effective collaboration for the foundation of an agreement.

With the advent of bilateral agreements, NIH has been cast in the role of a respondent, because the initiative and the impetus continue from the foreign policy sector. NIH is not alone; it is the role of several scientific agencies today. In supporting biomedical research outside the United States, NIH continues to maintain high standards of performance, but there is competition now for human and fiscal resources with the existence of formalized intergovernmental arrangements. The latter do not eliminate scientist-to-scientist and institution-to-institution contact, but they have a skewing effect. That is, they lessen the opportunities to initiate and conduct international science on a subject basis and they increasingly introduce geographic boundaries within which the collaboration must be performed. This is in direct contradiction to the oft-stated philosophy of scientists that science knows no geographic limits.

Within eight years, HEW has signed seven health agreements: USSR* (1972), Poland (1973), Egypt (1974), Germany (1976), Italy (1978), the People's Republic of China (1979), and Israel (1980). Not one of these agreements is accompanied by a funding commitment at the HEW level. HEW is dependent upon the Public Health Service agencies for program development, funding and operations. The approach to these agreements has not taken sufficient account of the scientific and technical diversity of the countries either in planning the arrangements or in the actual administrative structures. The United States agreement with the People's Republic of China is essentially a duplicate of that with the USSR.

If the pattern continues, one can expect a continuing succession of bilateral agreements. Of the Western world, the United States is unique in these undertakings. Canada and the United Kingdom do not have an extensive number of bilateral agreements. The existing policy in France is that those scientific agreements undertaken for political purposes must be and are funded by their equivalent of our Department of State. Their Ministry of Health does not have funds for such agreements and, therefore, does not enter into them. The Institut National de la Santé et de la Recherche Médicale

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* Signed by the Secretary of State for the United States and the Minister of Health for the USSR.

(INSERM), the equivalent of our NIH, funds and engages in international cooperative programs which are judged to have scientific value.

There should be some thought given to seeking the most appropriate level for international scientific cooperation. The trend has been to move the mechanism for collaboration to the higher levels of government which includes project development, review and implementation, and hence decision-making. If the program is biomedical research, instead of the NIH engaging directly in the number and kinds of scientific agreements from which the United States can participate in and derive scientific benefit, there appears to be a belief that there needs to be an umbrella health agreement. Accordingly, a true coordinating mechanism at the Departmental level which should serve an analysis and synthesis function does not exist but instead there is a mixture of coordination and operation.

The mechanisms for developing these bilaterals as well as how and why subject areas of research are identified for collaboration deserve analysis. Are research priorities those of the United States, the participating country, or the world? What does one do confronted with the lack of resources, both people and funds? Is evaluation part of the agreement and are there standards of performance? Can one ever prevent a bilateral or terminate one after it is underway? The problem is not amenable to clear-cut evaluation. How do you weigh total time, talent, and money spent through geographic and political arrangements against the time, talent, and money which could have been directed to collaboration with scientific peers? How do you compare and assess the political advantages of dialogue against actual scientific progress? The situation is further complicated by the fact that quantitative data do not exist on total expenditures for these many bilateral agreements.

The ultimate assessment depends upon the point of view. The diplomat considers these bilaterals helpful for political, economic, and security reasons. They establish a dialogue and provide an entrée. Agreements can be signed and communiqués issued, which are signs of activity, if not accomplishment. The scientist usually believes that these agreements are not needed, except with the Communist States of Eastern Europe where, although they still involve cumbersome administrative requirements, they do permit greater access than could be achieved on an individual basis. A manager of an institution which is a national resource may consider bilaterals effective if they reinforce programs, but a burden when they compete with staff time and domestic funding with no immediate justifiable scientific return.

These are just a few of the issues which should make the United States pause in what appears to be a quickening pace in establishing bilateral agreements which can be time and energy consuming and potentially a disappointment. The challenge is whether the United States can make well-informed decisions to blend substance, mechanism, and objective into meaningful international scientific relationships which are distinctive in terms of developed or developing countries, allies or adversaries.

Chapter VII

COOPERATION WITH THE DEVELOPING WORLD

> *If you want your life's work to be useful to mankind, it is not enough that you understand applied science as such. Concern for man himself must always constitute the chief objective of all technological effort . . . to assure that the results of our scientific thinking may be a blessing to mankind, and not a curse.*
>
> ALBERT EINSTEIN (*1*)

GENERALIZATIONS ON COOPERATION with the developing world can be misleading—each country, each subject area has a uniqueness that deserves special attention and consideration. Many of the problems are of such magnitude that their solution requires concerted effort, unique manpower resources, large sums of money, and years of commitment. However, thoughtful joint planning and implementation with modest funding may often achieve more than vast funds ineptly applied.

A brief description of United States assistance programs will serve only as background for several examples of United States cooperation with the developing world in public health, research and communication:

1. Public Health Technical Cooperation
    a. Liberia.
    b. Global Smallpox Eradication.
2. Research: The Cholera Research Laboratory
3. Communications: The PAHO Regional Library of Medicine

United States Assistance Programs and Health

I do not intend to analyze in any detail the organization, content, or administration of United States technical assistance programs or their health components, but I shall describe the relationships and the general program areas which have involved the Public Health Service in United States assistance programs abroad for over thirty years.

Table 68 gives a chronological listing of the United States Government organizations which have been concerned with some form of health assistance since 1938. At that time, Congress established an Interdepartmental Committee on Scientific and Cultural Cooperation to give scientific, technical, and professional assistance to the governments of the American Republics and the Philippines. This program was directed by the Assistant Secretary of State for Public Affairs. Between 1940 and 1947, 44 public health experts were detailed to projects in Latin America and 184 Latin Americans were given public health training in the United States. Health missions were sent to Peru, Paraguay, and Iran between 1948 and 1951. The Committee was abolished after World War II.

In 1950, the Act for International Development (Point Four), PL 81–535 was passed and Executive Order No. 10159 issued. The Public Health Service signed a formal interagency agreement with the Technical Cooperation Administration (TCA) of the Department of State whereby PHS operated technical assistance health missions in the developing countries, utilizing Department of State funds and delegation of authority. This Interagency Agreement also provided positions and funding for the headquarters staff of the Office of

Table 68.—United States Federal Organizations with Health Assistance Programs

1938	Interdepartmental Committee on Scientific and Cultural Cooperation.
1942	Institute of Inter-American Affairs—IIAA.
1944	United Nations Relief and Rehabilitation Administration—UNRRA.
1948	Economic Cooperation Administration—ECA.
1950	Mutual Security Agency—MSA.
1950	Technical Cooperation Administration—TCA.
1953	Foreign Operations Administration—FOA.
1955	Interdepartmental Committee on Nutrition for National Defense.
1955	International Cooperation Administration—ICA.
1961	Agency for International Development—AID.
1979	International Development Cooperation Administration (Umbrella Organization to encompass AID and Institute for Scientific and Technological Cooperation).

Left to right: **In 1950, Dr. van Zile Hyde was Director of Health and Sanitation of the Technical Cooperation Administration; Dr. Jonathan Bingham, Administrator, Technical Cooperation Administration; Dr. Leonard Scheele, Surgeon General; Dr. Kenneth Iverson, President of the Institute of Inter-American Affairs. (Courtesy of Dr. Henry van Zile Hyde)**

International Health to plan and supervise technical assistance programs in developing countries. The agreement, signed 28 years ago between the TCA and the PHS, continues today as a Resources Support Services Agreement between the Agency for International Development (AID) and the Office of International Health (OIH) in HEW (Chapter II, pp. 42–43).

The Foreign Operations Administration (FOA), established in 1953, brought together the Marshall Plan activities, and the technical assistance programs of the Technical Cooperation Administration and the Institute of Inter-American Affairs. FOA's successor in 1955 was the International Cooperation Administration which in turn was succeeded in 1961 by the Agency for International Development (AID). AID also includes the development loan fund and the local currency lending functions of the Export-Import Bank. AID was subsumed in 1979 under an umbrella organization, the International Development Cooperation Administration (IDCA) which is designed to include also a private international corporation and an Institute for Scientific and Technological Cooperation.

An Interdepartmental Committee on Nutrition for National Defense (ICNND) was established in 1955. The Committee was to assist governments of developing countries to assess the nutritional status and needs of their populations and to make specific recommendations for improvement. Surveys were conducted in 25 countries, using United States specialists from more than 35 universities and colleges and 24 governmental and private agencies. The ICNND was abolished in 1965.

Health was not specifically mentioned in foreign assistance legislation until 1967 when the Foreign Assistance Act Statement of Policy read in part:

> The first objectives of assistance shall be to support the efforts of less developed countries to meet the fundamental needs of their peoples for sufficient food, good health, . . .

Congress, in the Foreign Assistance Act of 1973, asked AID to redirect its programs away from the traditional project and economic development approach to one which would benefit the poorest of the world's people.

Table 69 shows the AID allocation of funds for health, sanitation, nutrition, and population activities for FY 1967–74. Of the $232 million in FY 1974, 2% was for nutrition, 53% for population and 45% for health. Health was defined as including: clinical services, disease eradication and control, environmental sanitation, general public health, health manpower and health planning. Of the $103.96 million for health in 1974, 30% was for disease eradication and control, and 26% was for environmental sanitation (Figure 15).

In the House Appropriation Hearings for Fiscal Year 1977, centrally funded research was identified as follows:

	(In millions)
Food and nutrition	$10.7
Population	10.3
Health	1.8
Education and human resources	1.6
Development activities	1.8

AID's centrally funded research represents 0.8% of AID's total budget of $3.3 billion.

Table 70 shows AID funding trends for health, population and nutrition for FY 1976–79. Total funding for these three programs

Table 69.—Agency for International Development Funding for Health, Sanitation, Nutrition and Population Activities, FY 1967–1974—Allocation of Funds in Thousands of Dollars

FY	AID Total	Total	Clinical Services	Disease Eradication and Control	Environmental Sanitation	General Public Health	Health Manpower	Nutrition	Population	Admin., Planning, Other
1967		67,654	12,565	20,974	17,093	7,000	6,366	1,067	2,589	
1968	1,011,899	162,509	42,414	39,797	45,694		2,694	700	31,210	
1969	732,303	102,314	31,475	13,125	8,553		2,222	1,391	45,548	
1970	1,876,776	168,523	36,312	10,299	42,205		2,982	2,115	74,610	
1971	1,722,071	152,838	28,218	14,062	9,946		3,111	1,826	95,675	
1972	1,702,600	166,976	29,047	7,030	3,078		2,726	2,033	123,062	
1973	976,546	211,795	45,214	8,433	3,349			1,667	126,905	26,227
1974	865,830	232,123	30,960	30,240	27,249			4,885	123,003	15,786

[1] Source: Agency for International Development.

Figure 15. Agency for International Development support for activities in health, nutrition and population.

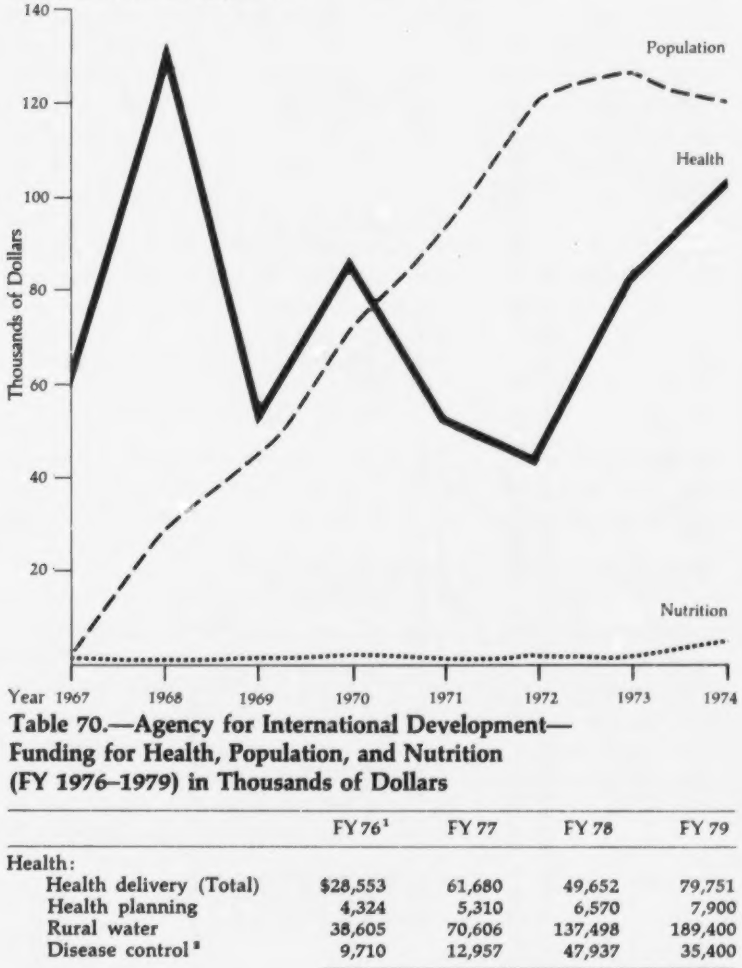


Table 70.—Agency for International Development—Funding for Health, Population, and Nutrition (FY 1976–1979) in Thousands of Dollars

	FY 76[1]	FY 77	FY 78	FY 79
Health:				
Health delivery (Total)	$28,553	61,680	49,652	79,751
Health planning	4,324	5,310	6,570	7,900
Rural water	38,605	70,606	137,498	189,400
Disease control[2]	9,710	12,957	47,937	35,400
Total	81,192	150,553	241,657	312,451
Population	133,926	157,980	172,673	185,000
Nutrition	38,174	10,661	12,753	10,222
Grand Total	$253,292	319,194	427,083	507,673

[1] 15 months (includes transition quarter).

[2] Includes research, tropical disease research, malaria vaccine.

Source: Agency for International Development increased 34% from $319 million in FY 1977 to $427 million in FY 1978. Whereas health accounted for 33%, population 50%, and nutrition 15% in FY 1976, they were estimated at 61%, 36% and 2% respectively in FY 1979.

The Magnitude of the Task

Global health requirements are enormous—and it is difficult to separate them from social and economic decisions. Robert S. McNamara has commented on the failure of development to close the gap in per capita income between the developed and developing countries in the last 25 years. He attributes this to, not a failure of the development efforts but to an unrealistic objective, then and now. Assuming that the developing countries could double their per capita growth rate and the industrial world maintained its historical growth, his calculations are that only seven of the fastest growing developing countries could close the gap within 100 years, and only another nine within 1,000 years. (2)

Mr. McNamara suggests that closing the income gap should not be the primary objective of development. He recommends the gap in quality of life as most deserving of attention and one in which realistic progress could be made. The latter would require greater economic assistance from the developed world (the World Bank indicates the possibility of providing its member developing countries between $30 and $35 billion in net financing over the next five years); and it would also require that the governments of developing countries adopt policies to assist the poor to increase their productivity and assure more equitable access to public services.

This calls for both political action and a comprehensive and continuing analysis of development problems. Within this framework of economic, social, and political considerations, the international health objectives of the United States vis-a-vis the developing world must be selected with care and thought. Volumes have been written on this subject as one attempts to proceed in applying knowledge and technology to obtain visible and tangible results for the good of the individual and society.

Goals

Dr. Mahler, the Director General of the World Health Organization, recently has placed a goal before the world health community —"the attainment by all the citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life." Several targets are: "the immunization of all children against common infectious diseases and the provision of safe water supply and sanitation for all by 1990 . . ." (*3*) Although doubt has been expressed that the goal and perhaps even the targets may not be achieved, these targets and goals remain as a challenge to all. The United States is confronted with the question of whether agreement can be reached on its health goals as well as the WHO global health goal. This requires a decision on priorities, programs, and implementation.

Dr. Bourne (*4*) had proposed that "If developing countries can sustain a major effort, essential Government commitment and increase resources, and if donors cooperate, the following achievements in health may be possible within 10 years:

> Increase in life expectancy by 5 to 10 years per decade for those countries with average life expectancy at birth of less than 60 years.
>
> Reduction in infant mortality by 5 to 10 deaths per 1,000 live births per year for countries with infant mortality above 50 per 1,000 live births.
>
> Decrease in death rate in children ages 1 to 4 by 1 to 3 deaths per 1,000 children per year in countries with preschool mortality above six deaths per 1,000 children.
>
> Decrease in birth rate by one live birth per 1,000 population per year for countries with crude birth rates over 25 per 1,000 population.

These are improvements based on very significant conditions, which need greater specificity to have full comprehension of the requirements.

Specific goals could be identified in biomedical information in terms of nature and kind of resources, information services and products. These are quantifiable. More difficult would be the use and application of knowledge. Even more difficult is the setting of goals for research. Perhaps the primary goal should be the development of scientists, physicians, and health professionals who can contribute to the generation of new knowledge and the application of existing knowledge.

Public Health and the Socioeconomic Environment

How much can be accomplished by changing the socioeconomic environment within which public health problems exist needs to be studied and quantified on a country or regional basis. Examples can be drawn from our own country. As recently as 1865, inspectors were describing New York streets covered with domestic garbage and filth and the disgraceful conditions of the sick room. Lemuel Shattuck's report, considered by Dr. John C. Snyder (*5*) as the first American classic in public health, recommended the acquisition of vital statistics, training, vaccination, maritime quarantine, and community action, (*6*)

Infant mortality (140 per 1,000) in New York City (1900–30) was due to five prominent causes: digestive system ("cholera infantum-diarrhea"), respiratory system (primarily pneumonia), infectious diseases, premature births, and congenital malformations. According to Dr. Walsh McDermott, two diseases, the diarrhea-pneumonia complex, accounted for more than one-half of the total infant deaths —75 of the 140 per 1,000. The decrease in deaths from the pneumonia-diarrhea complex from 75 to 17 per 1,000 by 1930 occurred with no vaccines and no antimicrobial drugs. The decrease was due to improved conditions such as chlorination of water, pasteurization of milk, visiting nurses, clinics, growth of pediatrics, campaigns against illiteracy, and an increase in primary school education. Dr. McDermott summarized it as "a period of intense community development in which many people, including some of the leading physicians, played a big role." (*7*)

Dr. Richard Krause (*8*) has suggested that the tropical diseases be characterized similarly—first, those diseases for which application of social, economic and public health measures would provide effective control; and second, those diseases for which the application of socioeconomic and public health measures will have little benefit but which will require research, manpower and resources to develop diagnostic procedures, treatment, and preventive measures.

These are considerations pertinent to the WHO Special Program for Research and Training in Tropical Diseases. This program is concerned with malaria (400 million at risk in the world), schistosomiasis (200 million people infected), filariasis (250 million people affected), trypanosomiasis (35 million people at risk, and 10,000 new cases annually), leishmaniasis (prevalence and epidemiology poorly defined), and leprosy (70 countries and 11 million cases). How this WHO effort and United States scientific and fiscal contributions will merge is not totally defined; but planning, analysis, and decisions are needed to establish priorities, allocate resources, and avoid a splintering effect with no total impact.

There are two extreme positions in developed/developing country collaboration. Advanced countries may believe that encouraging science and technology for development amounts to establishing modern scientific institutions in less developed countries and massively transferring modern technology to them, preferably through private channels. In contrast, spokesmen for the developing world may believe that science and technology for development will abolish all international barriers that hinder their access to the results of scientific and technological progress. Neither approach alone will be effective; the solution rests with increasing the developing world's capacity to absorb and use scientific knowledge and technical expertise. Thus, a long-term, integrated international and domestic effort is needed.

In the same manner that technology has become more prominent in the deliberations of the developing countries, there is also a beginning realization that science and basic research may have a place. Dr. Caryl Haskins observed fifteen years ago that:

> Vital as relevant technologies are for the new nations, in the end they will not be enough. In the long run, some, if not all, of the new nations will need an indigenous, living science of their own, however limited it may be in volume or in scope. (*9*)

This is evident in a number of ways; less clear is how science and research will find their proper niche.

Public Health Technical Cooperation

Since the origin of the Public Health Service, its staff has been active in international health programs, but the organizational role has changed from those years when PHS officers were directly involved to a period where health assistance was subsumed under a broader technical assistance agency. PHS officers have been staff members of the Institute of Inter-American Affairs (IIAA), participated in technical missions, and have been part of bilateral and multilateral health endeavors. United States participation in international public health programs is a topic which deserves a major treatise, but two illustrative examples will highlight the complexity of these endeavors. One example is drawn from the United States experience with Liberia in public health and in research, and the other is United States participation in global smallpox eradication.

Liberia

Some of the highlights of the health and research assistance provided by the United States to Liberia are included because the United States undertook these programs for military and humanitarian purposes and as part of overall assistance in economics, agriculture and education.

Historically, Liberia had a unique relationship to the United States in that Americans of African descent returned to Africa to form a Free State which became a sovereign country, Liberia, in 1847. Almost 100 years later, during World War II, the United States Army had units in Liberia including a station hospital. In 1942, Colonel Leon Fox, Medical Corps of the United States Army, noted the existence of malaria, venereal disease, enteric diseases, and helminthiasis in Liberia. There was no general vaccination program, and the public was susceptible to a smallpox outbreak. Water supply and sewage disposal were primitive. There was an abundance of flies, mosquitos, and other disease vectors. He believed, therefore, that "The financing of health service for Liberia probably offers as great an opportunity to do good as remains in the world . . ."

On January 31, 1943, William V.S. Tubman, Liberia's President-Elect, wrote to President Roosevelt requesting aid from the United States. The United States Minister to Liberia, Lester A. Walton, wrote a supporting letter and, in February 1944, these letters together with a five-year proposal for public health in Liberia were submitted to President Roosevelt. He approved the principle of the plan and wrote, "I think we should do everything possible to improve health conditions in Liberia. This should be taken up with the War Department and the State Department and Lend Lease. I should like to have a report on the progress." The three agencies conferred and decided upon an implementation plan. On March 28, 1944, the Department of State requested the Office of the Surgeon General of the Public Health Service to send a medical and public health mission to Liberia. (*10*) In November 1944 a mission of "twelve members including physicians, engineers, entomologists, nurses, a health education assistant and a fiscal agent" was assigned. The charge given to this group was to:

> control communicable and exotic diseases in Liberia to minimize the damages of these diseases to the United States, and to minimize the dangers of these diseases to military personnel and to transients in Liberia from the United States and other

> allied nations. This work will involve drainage and filling of swampy areas and other methods of control of aquatic forms of exotic disease transmitting vectors. It will include furthering the control of water supply in sewage disposal, provision of direction and organization for better hospital facilities in standardized medical service in Liberia; also the organization of a broader Public Health Department for the Liberian Government. (*11*)

Dr. John B. West, a member of the mission, described the existing health resources upon their arrival in November 1944. They found no medical supplies, no equipment, six physicians, two dentists, and an unknown number of nurses for a population of about two million. Dr. West commented that "there appeared to be some question as to the validity of credentials of one of the practicing physicians." Approximately 25% to 50% of the nurses were not graduates of schools with didactic courses in nursing. There were two general hospitals in Monrovia—the Liberian Government Hospital with 35 beds, and the Carrie V. Dyer Memorial Hospital, operated under the auspices of the Baptist Board of Foreign Missions, with a capacity of 25 beds. Both of the institutions were ill-equipped in staff, and supplies were very low. The conditions, according to Dr. West, were due primarily to a combination of insufficient funds and the difficulty of obtaining personnel and equipment during war years. There were other hospitals: two operated by the Firestone Plantations Company, one operated under the Protestant Episcopal Mission, and another under the Lutheran Mission Board. There were two general clinics and some government-operated clinics, but only three had a graduate physician in attendance. There was no pharmacy or supply house to procure pharmaceuticals, biologicals, drugs, and chemicals.

The mission decided to concentrate on Liberia's major diseases—malaria, helminth infestations, venereal diseases, and in certain areas of the country, schistosomiasis, filariasis, and trypanosomiasis. In his evaluation of three years of effort in Liberia, Dr. West considered the most important element was the increased administrative and financial support from the Liberian Government. From 1944 to 1947, the Liberian Government had increased its public health and medical care budget from $72,000 to $400,000, which represented the principal item in the budget. The number of physicians had increased from six to twenty-three and the Liberian Government employed fourteen of them in its medical program. There were seven new hospitals in various stages of completion; sixteen clinics instead of the ten in 1944, with seven more clinics proposed for the following year. Dr. West was succeeded by Dr. Hildrus Poindexter in 1948.

In 1947 Liberia adopted a five-year plan to expand existing services and facilities and to improve the overall economy of the country. However, before this plan was implemented, it was decided to draw up a more detailed and comprehensive development program. The United States sent an economic mission to study resources, and subsequently a development plan was evolved which would require an expenditure of $32.6 million. This plan was put into effect in 1951.

The United States Public Health Mission functioned until 1951, training nurses and laboratory technicians, and conducting surveys on malaria and schistosomiasis. Its personnel also acted as advisors to the Bureau of Public Health and Sanitation. By 1952, the Washington staffs of the Technical Cooperation Administration and the Division of International Health, faced with limited funds and personnel, concluded that the cooperative program should concentrate on a few projects in order to achieve some results in a relatively short time. The Liberian National Public Health Service agreed to these recommendations, under which the United States would provide administrative support, training, malaria control, health education, rural health, laboratory training, and research. Although the Liberian Government had limited resources, 14% of its national budget was being expended for health activities.

> . . . The desire of this [Liberian] government for improved health programs in as short a time as possible sometimes creates the problem of over-extension. However anxious it may be to fulfill agreements, financial limitations have proven a deterrent. This has been most evident at times in the provision of transportation facilities, supplies and materials. Even more disturbing, in the light of mutual objectives, is the availability of personnel with sufficient background to be trained in the areas of common interest. As a result, personnel often have had to engage in direct activities rather than in those of training and advisory services.
>
> Similarly, it has not been easy on the U. S. side to provide and maintain the personnel necessary for the varied programs it has undertaken to support. Delays in recruitment have been compounded by further prolonged periods necessary for processing of personnel. Periods of uncertainty, as to whether areas of emphasis was what the changed leadership in Washington desired, have slowed activities. (*12*)

The 1954 Liberian National Public Health Service Report emphasized that planning and implementation proceed at different rates, with planning usually far in advance of implementation of agreed-upon objectives. Because of this, the effectiveness of the programs was frequently questioned. Coupled with this was an awareness that the tools to do the job were insufficient. This, then, created a problem in maintaining balance not only within the Liberian National Public Health Service but in relating public health to other expanding programs of the Liberian Government. A description of the Malaria Control Program was published in 1954, again in 1955, and in a Malaria Control Terminal Report, 1957. (*13*)

At the beginning of 1965, 50 Liberian students with Government, WHO, or foreign government scholarships, and four students financed by the missions were studying medicine in various European countries and the United States. As of 1967 there was no fully operative medical school in Liberia. The Monrovia/Torino Medical School was in the process of being established under a joint arrangement between the Liberian Government, the Vatican, and the Medical Faculty of the University of Torino, Italy. There were other health activities in community water supplies (which had been surveyed by the World Health Organization, 1963), and refuse excreta disposal, food hygiene, and vector control; all considered under the broad area of environmental hygiene. Liberia admitted there were financial difficulties and assigned priorities to administration, training, basic health services, preventive health care, control of communicable diseases, maternal and child health care, medical care, and environmental improvement.

The building of the medical center at Monrovia, officially designated as the "Kennedy Memorial Hospital," was being financed by a loan from the United States. When completed, it would include the existing general hospital, the eye hospital, and the pediatric section of the maternity center. The total number of beds would be 300. The medical center would not be limited to clinical care, but it would house the paramedical training institute and the training program of the Tubman National Institute of Medical Arts. The training program was to be conducted for a period of five years by a team from the United States Public Health Service in cooperation with the National Tutorial Staff. Provision for maintenance was made in the recurrent expenditure estimates, beginning at $426,000 in 1967 to $730,000 in 1969. Bilateral aid of $380,000 in 1967 would fall to $73,000 in 1970.

National Health Plan

In his preface to a Ten-Year National Health Plan (1967-76), President Tubman of Liberia wrote that this health plan had been formulated as part of a Government socioeconomic plan and would be the guideline for the future. He acknowledged generous United States financial assistance and WHO technical assistance. President Tubman also stated that the Liberian Government would make every effort to find the financial resources necessary to implement the plan.

The Plan recognized certain priorities in providing health protection for the people of Liberia: (1) a concentration of resources on preventive rather than curative medical services, with a balance between the two, (2) medical care would be available to every citizen irrespective of ability to pay, (3) priority health care for infants, pre-school, and school children and expectant and nursing mothers, (4) effective schemes of health education to ensure the cooperation of the people, (5) health service must not only expand to provide adequate facilities but also must keep pace with population increase. The greater need, however, in Liberia was to provide and maintain effective basic health services throughout the country. In addition to this health plan, Liberia's National Planning Agency was preparing an overall plan for socioeconomic development of the country. (*14*)

A medical manpower survey in 1975 showed there were 151 doctors in practice in the country and 19 dentists, or a total of 170. Of these, 31% were Liberians. The overall ratio was one doctor to 9,260 population, which is misleading for several reasons. The majority were practicing in Montserrado County (one per 4,084 population) and the rural areas continued to be practically neglected. If there were an average of ten Liberian graduates entering into medical practice annually, it would be twelve years before Liberians would be the mainstay of the medical profession. (*15*)

In 1975 the Liberian Government increased its appropriation for health by approximately $2.3 million. Problems were being encountered due to the decrease in the purchasing power of the dollar, and it was difficult to obtain drugs and supplies and to function at the projected level. With help from the United States Agency for International Development, Liberia prepared a three-year health planning project to begin in 1976 under joint sponsorship of Liberia and the United States.

AID emphasis in FY 1975 was to:

1. Provide additional support to the small producer through technical assistance in agriculture.
2. Assist in developing and expanding a national health system.
3. Assist development and rural orientation of education and training institutions.
4. Provide funds and technical assistance in support of self-help housing in Monrovia to lessen social pressures and provide employment.

In a summary of active and proposed projects for grants through Fiscal Year 1977, AID obligated approximately $24 million with an actual expenditure of $17 million. Of that, $12.9 million was for health projects. These included a National Medical Center, the Lofa County rural health project, and health management planning, with a planned program for an integrated rural health system (FY 1978). Actual expenditures for these three projects—the first of which began in 1961, the second in 1975, and the third in 1976—were $11.3 million. (*16*)

The Liberian Ministry of Health and Social Welfare has prepared a new statement of health goals and objectives for 1978-83. The Ministry identified 21 programs to achieve the objective of comprehensive nationwide health care delivery to 100% of the people by 1983. These 21 programs were: logistics for rural health delivery; expanded immunization campaign; adequate medical equipment and services; improved health facilities; training; development projects; preparation of county health plans; maternal and child health care; preventive health orientation; urgent preventive health measures needed—such as safe drinking water and public sanitation, preventive dental and eye care; nutrition; mobile health vans; primary health care; strategic bordertown health care services; county hospital outreach health services; county community welfare development programs; integration of nongovernmental health services within the health care delivery services of the Ministry of Health and Social Welfare; improved health education; strengthening the role of the Dogliotti Medical College and the John F. Kennedy Medical Complex in health care delivery; coordination of the role of donors in national health care delivery and a blood bank. (*17*)

Thus the programs ranged from such practical matters as purchasing vehicles and trucks to transport supplies, constructing small-scale gasoline stations near each county hospital, to national issues of bringing together private and governmental efforts within

Liberia and then merging this internal capability with external sources of assistance.

In spite of a long-term concentrated effort, malaria and gastrointestinal diseases are very common, and some diseases could be preventable if malnutrition and poor sanitary and hygiene conditions were corrected. The latest topic under discussion is the development of an "integrated national health system" which would involve a linkage of a United States medical center and the Liberian John F. Kennedy National Medical Center. Within this long history of efforts to improve the health conditions in Liberia, there has also been interest and activity in research in the tropical diseases.

An Institute for Research

Concern over the lack of interest and the relatively few specialists in tropical medicine prompted the American Society for Tropical Medicine and the American Academy of Tropical Medicine to establish the nonprofit American Foundation for Tropical Medicine in 1940. The Foundation, independent of both parent organizations, would centralize fund raising, encourage graduate and undergraduate instruction in tropical medicine, and stimulate research.

The Foundation directed in 1945 a research expedition to Liberia in cooperation with the Harvard Medical School to study African trypanosomiasis (sleeping sickness). By 1948 the Foundation had given assistance to the only school offering graduate courses in tropical medicine at that time (Tulane University) and had distributed $200,000 to establish and improve facilities for undergraduate teaching in some 20 medical schools. Subsidies had been provided for research projects, Latin American fellowships for graduate studies, and funds went to the Duke University Medical School to help establish a center for the study and classification of fungus diseases.

Support was also provided by the Foundation to the *Journal of Parasitology* and the *American Journal of Tropical Medicine* for publication of scientific articles. The Foundation had two priority programs. One was to establish a field research station in the tropics where scientists and graduate medical students could go for advanced training, field experience, and research in tropical medicine. The second was to develop a well-rounded graduate school of tropical medicine connected with one of the larger university medical schools.

Harvey S. Firestone, Jr., provided a gift to establish the Liberian Institute of the American Foundation for Tropical Medicine. It was intended that this facility would be open to other organizations in various parts of the world and thus become an international center for research in the problems of human health in the tropics.

In its 1946 brochure the Foundation referred to this "friend" of the Foundation who had offered to construct and equip an Institute for Research in Tropical Medicine and Public Health in Liberia at a cost of $250,000. A combination of a laboratory and field proving-ground would provide opportunities to medical scientists, and to the pharmaceutical, chemical, and drug industries for testing new agents and drugs. It was suggested that the public would benefit from having a multidisciplinary approach to tropical disease research. The Foundation was to assume full responsibility for the Institution's ownership and management and provide an operating fund to maintain the Institute for a minimum of five years. The Institute would have officers, a board of directors, a Scientific Advisory Committee drawn from a number of university medical schools and industrial research laboratories, and a planning committee. (*18*) The Liberian Institute of the American Foundation for Tropical Medicine was incorporated in New York in 1946 and located in Charlesville, Liberia. It ceased to operate in about 1969, when the American Foundation and other major contributors withdrew support of the Institute.

Six years later, the Liberian Government said that a Biomedical Research Institute collaborating with the Ministry of Health and Social Welfare would expand the curative and preventive health services to include the control of disease agents. Accordingly, the Liberian Institute for Biomedical Research (LIBR) was established as an autonomous agency of the Government in 1975. A Board of Governors was appointed by the President with the Minister of Health and Social Welfare serving as Chairman of the Board. Operations were inaugurated in September 1975, and Dr. Ernest A. Dennis was appointed Director of the Institute. The LIBR took over the physical facilities and the practical functions of the former Liberian Institute of the American Foundation for Tropical Medicine. A first major task of the LIBR was to renovate the buildings and repair the equipment which had deteriorated. The LIBR has begun three major projects: a clinical service, a schistosomiasis surveillance project, and a hepatitis control project. The ultimate goal of the LIBR is consistent with WHO's concern for tropical disease and the development and coordination of biomedical research in Africa, that is, the control of tropical parasitic diseases of socioeconomic significance. In fact, the original Liberian Institute of the American

Foundation for Tropical Medicine had been offered to WHO for designation as a WHO International Center.

The United States, the Ministry of Agriculture, and the LIBR are developing a protocol for the surveillance of schistosomiasis in the Upper-Lofa development program. The four-year budget of $200,000 for the Upper-Lofa Schistosomiasis Project "makes no provision for controlling the disease." Schistosomiasis is a limiting factor to agricultural development in Lofa, Bong, and Wimba counties. The LIBR, therefore, intends to develop a schistosomiasis program beyond the scope of the present surveillance service.

A three-man team headed by Alfred Prince and consisting of a primatologist and a research associate from the Community Blood Center of New York has been performing research at the LIBR to develop and test vaccines against the strains of hepatitis-B virus with chimpanzees as experimental animals. The investigation is to be expanded to include immunopathological studies on the mechanism of cell death in hepatitis and cirrhosis, isolating and determining the prevalence of important arboviruses in Liberia, as well as maintaining, conserving and breeding chimpanzees. This project has received funds from the Community Blood Center of New York and the National Institutes of Health. (*19*)

Observations

The foregoing account has been descriptive and documented with published data as available. The actual cause and effect of Liberia's continuing to be confronted with major health problems is probably a combination of many factors on which I shall not speculate. The fact remains that the concept of integrating health programs with broader areas, commitments on the part of the host country, and developing research activities were all part of this history. And yet, after 33 years, considerable external aid and internal fiscal commitments from a national budget, severe public health problems exist as well as elementary needs relating to the socioeconomic aspects of the country.

Global Smallpox Eradication

Smallpox was probably the cause of the death in 1160 B.C. of Rameses V, King of the ancient Egyptian dynasty. (*20*) Three thousand years later, the WHO has been able to declare the global eradication of smallpox. The spread of this disease throughout the world, the many epidemics with great mortality, the introduction by Cotton Mather and Zabdiel Boylston of variolation to the American colonies in 1721, vaccination in 1721 by an English practitioner, Edward Jenner using living cowpox virus to evoke immunity against smallpox, the vaccination work of Dr. Benjamin Waterhouse in the United States, Thomas Jefferson's personal and official support, and mass vaccination programs are all part of this fascinating history.

Global smallpox eradication must be described because it was a concerted unique international effort, using a variety of resources and mechanisms, and most important of all, it was successful. Research, its application, vaccine production, and the organization of a national program in many countries were some of the important ingredients. The United States agencies participating in this endeavor were the Public Health Service National Center for Disease Control (NCDC) and the Agency for International Development (AID).

The Pan American Health Organization had started a regional smallpox eradication program in 1950. In eight years, several previously endemic countries had eliminated the disease by mass vaccination campaigns. PAHO support also stimulated the establishment of large-scale freeze-dried vaccine production centers in several of the countries.

In 1958 the USSR had proposed, and the World Health Assembly resolved, that there be a program of global smallpox eradication under the auspices of WHO. However, the primary responsibility for program implementation would be at the country level. (*21*)

Although the last known case of smallpox in the United States was in 1949, the NCDC was investigating the use of injection in mass smallpox vaccination. In 1963 the United States, Jamaica, Tonga and Brazil engaged in a series of tests for mass vaccination by jet injection sequentially and under a variety of circumstances. It was possible to determine the optimal vaccine dose for field use. Jet injection was demonstrated to be an effective technique for rapid mass vaccination against smallpox.

Because the announced WHO smallpox eradication program in 1958 had not been totally successful, a WHO Expert Committee on Smallpox reviewed the situation in January 1964. (*22*) (*23*) There were a number of difficulties ranging from availability and adequacy of vaccine supplies to the fact not every country placed a high priority on the program. In numerous instances, a country had no administrative structure to execute a massive program in its preparation, attack and maintenance phases; and pilot projects were considered essential. A heat-stable freeze-dried vaccine was needed that could be stored at least one month at ambient temperatures and still be potent for the tropics. The participation of nonendemic countries was needed to provide adequate amounts of stable freeze-dried vaccine for distribution and storage in tropical countries. It was essential that contiguous endemic countries start mass vaccination campaigns simultaneously.

In his April 12, 1965 report to the Eighteenth World Health Assembly, the Director General reviewed activities since 1958. (24) Approximately 12 countries had succeeded in eradicating smallpox, either through national control or eradication programs, but there had not been full international participation. There were countries, such as Peru, where smallpox had been successfully eradicated, which were now threatened with the reintroduction of smallpox and the task of repeating mass national vaccination campaigns. The Director General concluded that increased effort and support was needed if the program was to achieve some success within a reasonable period.

Table 71 shows the geographical distribution of smallpox cases for the period 1959-64. India, Indonesia and Pakistan accounted for 90% of all Asian cases reported which in turn represented over 60% of the world total. The North African countries—Algeria, Libya, Morocco, Tunisia and the United Arab Republic had reported no endemic cases. However, 19 African countries accounted for 16-30% annually of the world total: Cameroon, Chad, Congo (Brazzaville), Dahomey, the Democratic Republic of the Congo,

Table 71.—Geographical Percentage Distribution of Smallpox Cases, 1959–1964

	1959	1960	1961	1962	1963	1964
World Total	100%	100%	100%	100%	100%	100%
Africa	19	27	28	30	16	26
Americas	6	9	10	10	6	2
Asia	75	64	62	60	78	72
Europe	0	0	0	0	0	—

— No case.
0 Negligible number of cases.

Source: World Health Organization, Official Records No. 143, *Eighteenth World Health Assembly, Geneva, 4–21 May 1965: Part I, Resolutions and Decisions Annexes, Smallpox Eradication Programme Report by the Director-General,* (Geneva: World Health Organization, 1965), Annex 19, p. 162.

Ethiopia, Guinea, Ivory Coast, Liberia, Malawi, Mali, Niger, Nigeria, Swaziland, Togo, Uganda, United Republic of Tanzania, Upper Volta and Zambia. As of 1964, Brazil, Colombia and Peru in the Western Hemisphere, still reported significant disease foci. European countries reported no endemic smallpox.

WHO was involved with four research projects: (1) studies for the simultaneous and sequential vaccinations in persons being revaccinated, (2) vaccination by jet injector, (3) variations in variola strains, and (4) chemoprophylaxis. From this research, preliminary results suggested there was a slight but variable advantage when vaccinations were made either simultaneously or a week apart; although this was less evident when high-potency vaccines were used. The United States field studies with local personnel in Brazil and Tonga had demonstrated 95% success rates for a primary vaccination, and successful revaccination was as frequent with the jet injector as with multiple pressure method. Laboratory techniques were developed to differentiate between variola major or variola minor. Chemical compounds were being tested for antiviral activity such as isatin-beta-thiosemicarbazone ("Marboran") and N-ethylisatin-beta-thiosemicarbazone. WHO subsequently decided that national authorities would determine which new agents were of sufficient promise for field trials, and WHO's role would be to coordinate the studies and give expert advice to national technical committees.

It was estimated that the cost per vaccination varied throughout the developing world from $0.07 to $0.11. The components of the cost are approximately 70% for personnel and travel, 15% for vaccine, 10% for transport and 5% for miscellaneous expenses. An intensified program in the Americas and Asia to complete the attack phase within five years would require vaccinating or revaccinating approximately 200 million in South America and 350 million in Asia or half of the total population of the endemic areas. The cost would be approximately $40 million with approximately $7.5 to $11 million needed from external sources. The estimated cost for Africa to vaccinate approximately 200 million people twice in the endemic area would be $40 million. Of this, perhaps 40-50% might have to come from external sources.

On November 25, 1965, President Johnson announced a United States campaign with 20 West and Central African Countries to protect 105 million people against smallpox. This plan was designed to complement WHO plans for smallpox eradication throughout

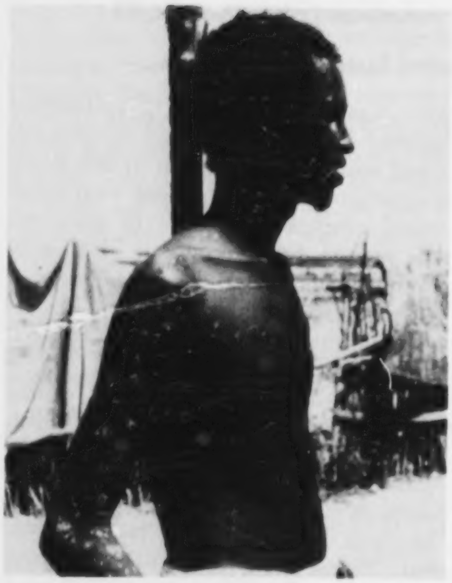
Africa and around the world within ten years. The United States was also helping with a measles control campaign where measles was a fatal disease for many children each year. Dr. A. C. Curtis, Chief, Public Health Division, Office of Institutional Development, U.S. Agency for International Development (AID) and Dr. D. A. Henderson of the National Center for Disease Control, had laid the financial and technical groundwork for this country/regional program in West and Central Africa. In January 1966 AID and CDC signed an interagency agreement and the "West and Central African smallpox and measles control program" became a reality. AID provided funds and CDC staffed and managed the program. Agreements were reached with individual countries; planning and programs began.

In May 1966 the Nineteenth World Health Assembly considered a report outlining a ten-year plan for the development of the WHO smallpox eradication program and initiated a major coordinated program for worldwide eradication of the disease under WHO auspices. (*25*) The four operational procedures for both the smallpox eradication and the measles control program were: (1) mass vaccination, (2) assessment, (3) surveillance and epidemiological investigation, and (4) maintenance activities.

The program to eradicate smallpox and control measles in West and Central Africa involved WHO and United States bilateral and technical financial assistance, 20 countries mounting a coordinated campaign of mass vaccination, assessment, surveillance and maintenance activity. The details of the program have been described by Foege, Millar and Henderson. (*26*) (*27*) The United States provided commodities, lyophilized smallpox vaccine, jet injectors and vehicles, medical epidemiologists and nonmedical operation officers. Fifteen medical officers and 22 operations officers arrived from the United States late in 1966. The Ministries of Health provided personnel at all levels and assumed responsibility for local costs. WHO assisted the programs in financing certain local costs. Two regional organizations coordinated the programs in their respective areas. By October 1969, 19 of the countries had become free of smallpox, with Nigeria reporting some cases in 1970.

The global campaign against smallpox continued into the seventies with the use of bifurcated needle becoming an essential technique. The last naturally occurring case of smallpox was reported in Somalia in October, 1977. On October 26, 1979, the WHO officially declared the global eradication of smallpox.

Top, an "isolation ward" for a smallpox sufferer in the Somali desert. This was in the closing stages of the campaign to eliminate smallpox from the African continent; bottom, this villager in Somalia received a 200 shilling reward for directing the search teams to one of the last smallpox cases. (Courtesy of the World Health Organization)



Top, this smallpox patient may have found a niche in medical history. Ali Maow Maalin, 23 years of age, in the town of Marka, Somalia, had the last recorded case of smallpox in the world. The onset of his rash was on 26 October 1977; bottom, **Ali Maow Maalin pictured after his recovery from smallpox. On October 26, 1979 the World Health Organization officially declared that smallpox has been eradicated from the globe. (Courtesy of the World Health Organization)**

Research: The Cholera Research Laboratory (CRL)

A Cholera Epidemic and United States Foreign Policy

The Southeast Asia Treaty Organization (SEATO), established in September 1954, was designed for the defense of its member countries against aggression and subversion. Included in the treaty was an article in which the countries pledged to assist each other and, "by self-help in a mutual cooperative effort" to raise the standard of their own people and to bring economic and social progress to their countries. The members of SEATO were Thailand, the Philippines, Pakistan, United States, United Kingdom, France, Australia, and New Zealand. During its early years, SEATO placed priority on the mutual defense aspects of the organization.

Two events coincided during 1958: (1) the policy of the United States Department of State to broaden military alliances to which the United States was a party (NATO, SEATO) to include non-military interests—in particular science, education, and technology and (2) an outbreak of cholera in Thailand. A cholera epidemic occurred in June 1958 in Bangkok, which aroused humanitarian concern and scientific interest. Teams were sent from Jefferson Medical College of Philadelphia, the National Institutes of Health, the Walter Reed Army Institute of Research (WRAIR) and the United States Navy Medical Research Unit No. 2 (NAMRU-2, Taipei) to work with Thai scientists. Cholera in epidemic form had not existed in Asia for approximately 10 years.

Dr. Clifford Pease (*28*) encouraged Captain Robert A. Phillips, Medical Corps and Director of NAMRU-2, to visit Thailand. Captain Phillips met in June 1958 with John Conroy, SEATO Desk Officer of the United States Embassy. Mr. Conroy discussed with Captain Phillips the concept of broadening SEATO activities into non-military areas. Captain Phillips suggested the establishment of a SEATO medical research laboratory in Thailand; and at Mr. Conroy's request, Captain Phillips developed a plan with a budget of approximately $400,000. The Phillips proposal was forwarded to Washington in September 1958 and the International Cooperation Administration (ICA) in Washington earmarked $400,000, a one-time funding with no continuing support. No thorough exploration had been done on how to establish a laboratory, find qualified staff and equipment, and provide a stable and continuing base of operations.

Dr. Pease was asked to chair a meeting of government and non-government scientists in December 1958 to discuss their proposed plans for cholera work in Thailand. As a result of this meeting, Dr. Pease asked NIH and WRAIR whether the $400,000 earmarked for a medical research laboratory could be used in the field of cholera. This was the beginning of the concept of a cholera research program. In January 1959 the National Institutes of Health appointed an *Ad Hoc* Advisory Committee on Cholera chaired by Dr. Joseph Smadel. This Committee was to advise ICA on the use of the $400,000 for a cholera program and to recommend to the NIH Director future NIH participation in cholera research.

The Thai Government proposed that the SEATO Council sponsor a continuing research program on cholera which might lead to improved methods of treatment and control and eventually, perhaps, to eradication. The Council did approve the establishment of the Cholera Research Program in May 1959. (*29*)

An agreement was reached between the United States and SEATO on "Special Technical Assistance, Cooperative Cholera Research Program." This was accomplished on May 29, 1959 by an exchange of notes signed at Bangkok by U. Alexis Johnson, the United States representative on the SEATO Council and by Pote Sarasin, Secretary-General of the Southeast Asia Treaty Organization. This is registered in Treaties and Other International Acts, Series 4247.

The United States note committed the United States Government, subject to applicable United States laws and regulations, to make available (not to exceed) $400,000 "to finance a cholera research program, to be carried out by the National Institutes of Health through American, Asian and other appropriate institutions and bodies." The Secretary-General of the Southeast Asia Treaty Organization was to enlist the support of the member countries of SEATO in this cholera research program, which could include not only funding but provision of personnel and facilities.

In SEATO's note of response, Secretary-General Sarasin stated that the Government of Pakistan would place at the disposal of the NIH all facilities in the Dacca Medical College and the Public Health Laboratories in East Pakistan and their staff as needed for the SEATO cholera research project. The government of Thailand would also seek suitable personnel to participate in the project and would provide facilities for any studies or work to be carried out in Thailand.

In August 1959, the International Cooperation Administration and the Department of Health, Education, and Welfare (HEW) signed an interagency agreement which requested the National Institutes of Health to assume responsibility for the development of the SEATO Cholera Research Program. ICA allocated $400,000 for a "research program consisting of fundamental and applied field and laboratory investigations . . . as a means of increasing knowledge of cholera and as an approach toward more effective control of this disease." An additional sum of $350,000 was also committed to continue the program through 1963.

Dr. Smadel headed an NIH Survey Team in August 1959. (*30*) The team concluded that the SEATO Cholera Research Program should have three major aspects: research, training and the establishment of a base for field and laboratory studies. The broad research program would include: clinical and physiological studies, epidemiological studies on cholera and endemicity, the role of carriers, the role of potable water from tube wells, studies to determine the efficacy of cholera vaccine, and nutritional studies to determine the relationship between nutrition and cholera.

According to Dr. Smadel, the team recommended that a base be established in Bangkok to continue in 1959–60 the clinical and physiological studies on cholera of the previous two years. Also recommended was the continuation of bacteriological and epidemiological studies on acute diarrheal diseases to determine whether cholera had a low endemicity in Thailand during the interval of approximately one decade between outbreaks. Because Dacca was the only endemic site in a SEATO country for cholera at that time, the team recommended that a laboratory be established during 1960 in Dacca for clinical, laboratory and field studies of cholera and other acute diarrheal diseases in the endemic areas of East Pakistan. The Dacca Laboratory would be the principal site for future operations. A mutual exchange of investigators between those countries rich in materials for clinical and field studies of cholera and those countries strong in basic laboratory disciplines would constitute the training program. The team also suggested that there be a conference of scientists within and without SEATO who were working on various aspects of cholera. The SEATO Council accepted the NIH Cholera Survey Team recommendations.

There were two series of developments, one in Thailand and one in Pakistan. The Thailand-SEATO Cholera Research Laboratory was established in late 1959 at the Royal Thai Army Institute of Pathology in Bangkok. This was a formal and logical continuation of the cholera studies done by United States and Thai personnel in 1958. The United States contribution came principally from the SEATO Cholera Research Program, the Walter Reed Army Institute of Research and the ICA program in Thailand. Workers came from NAMRU-2, WRAIR, and Jefferson Medical College.

One of the results of this work in Thailand was a pathology study involving a new technique for intestinal biopsies in acute cholera cases. This was the first report on living patients that the lining of the intestine tended to remain intact in acute cholera cases, contrary to the widely-held concept of denudation of the intestinal lining resulting in heavy fluid loss. The Bangkok Laboratory continued through December 1960, when it was succeeded by the SEATO Medical Research Laboratory. The latter was a cooperative endeavor between the Walter Reed Army Institute of Research and the Government of Thailand, and was completely separate from the SEATO Cholera Research program.

Division of Responsibilities

The Pakistan-SEATO Cholera Research Laboratory (CRL) was created by a formal agreement between the United States and Pakistan in October 1960. The SEATO Conference on Cholera held in Dacca, East Pakistan in December of that year officially inaugurated the Laboratory. This 1960 agreement was superseded almost completely by a second agreement, December 30, 1961, which called for an autonomous international laboratory to be established at the Institute of Public Health in Mohakhali, Dacca, East Pakistan. CRL was to develop, evaluate, and demonstrate measures of prevention and eventual eradication of cholera. Financing would be by contributions from Pakistan and the United States and from those other SEATO governments wishing to contribute. The United Kingdom became a participating nation in 1962.

A Directing Council provided overall guidance and consisted of a representative from each of the nations participating in the Laboratory program (Pakistan, United States, and United Kingdom), the Secretary General of SEATO, and the Director of the National Institutes of Health. The National Institutes of Health was given the responsibility for scientific direction of the Laboratory. NIH would appoint the Director of the Laboratory, who in turn was authorized to direct the activities of the CRL. The Director of NIH could appoint a Technical Committee which would be advisory to the CRL Director and the Directing Council on the technical aspects of the Dacca Laboratory's program development. The Committee consisted of research scientists from the United States, the United Kingdom and Pakistan. Scientific workers from the SEATO countries interested in various aspects of the cholera program were appointed as a panel of experts to provide specialized advice.

Development of the CRL

The research program involved investigations in other nations of Southeast Asia. The outbreak of an epidemic of cholera in Hong Kong in August 1961 enabled specimens from Hong Kong patients to be supplied to NIH investigators and their university colleagues. As a result new and rapid methods for the cultivation and identification of the *Vibrio cholerae* organism were developed, and special anti-sera were stockpiled in preparation for the expected spread of the disease from Hong Kong to other islands in the East Indies. Diagnostic materials were brought to the Philippine Health Department. (*31*)

In 1962 the CRL added a new section on clinical research with senior investigators Dr. Robert S. Gordon of NIH and Dr. O. Ross McIntyre of the Public Health Service. A research laboratory was created for biochemical and physiological investigations. A ward was established to study cholera in its acute phases, and the first patients were admitted on November 28, 1962. A water analysis laboratory operated by trained Pakistani technicians was added to the facilities by the International Development Mission to Pakistan.

Dr. K. A. Monsur, Chief of the Bacteriology Section of the Cholera Research Laboratory, developed improved techniques for the diagnostic isolation of *Vibrio cholerae,* the cause of the disease. A special maintenance media was developed for transporting specimens and this led to preparing a plan for continuing surveillance of cholera in East Pakistan.

In 1964, the Laboratory occupied one wing of the Institute of Public Health building and consisted of three floors, a 20-bed cholera ward, a library and laboratories for the clinical physiological and bacteriological studies. There was an epidemiology section, and animal facilities were provided. The staff has increased in size from 300 in 1964 to about 800 in 1979 and also in competence with special attention given to epidemiological surveillance. The CRL maintains demographic and epidemiological surveillance of a population of about one quarter of a million. This provides the basis for control trials of vaccines or other studies on prevention.

Funding

CRL funding has been mainly from the United States Government: (1) United States Agency for International Development

(AID) funds made available to NIH for the Cholera Research Laboratory, (2) NIH PL 480 rupee funds in Pakistan under the terms of a research agreement between NIH and the CRL, (3) USAID Pakistan direct contributions and administrative support, (4) NIH direct contributions, particularly payment of salaries of the United States staff from the National Institutes of Health and its Office of International Research and (5) the Communicable Disease Center direct contribution by funding the salaries of two epidemiologists assigned full time (after 1965).

Pakistan provided the physical facilities of the Institute of Public Health and an annual contribution including 250,000 rupees to the operating fund of the laboratory. The United Kingdom made an annual contribution of 10,000 pounds for paying salaries of its personnel or for purchasing supplies or equipment. Australia contributed two vehicles and the services of an anthropologist team to work with the epidemiology section.

With Bangladesh independence, the CRL no longer had local currency financing; this eliminated the extensive PL 480 support provided by NIH. AID provided emergency funding from April 1972 through June 1974 through a dollar grant to the International Rescue Committee. Bangladesh independence terminated the SEATO sponsorship of the CRL.

In 1973, discussions among the Government of Bangladesh, AID and NIH resulted in the development and acceptance of a plan for the operation of the CRL as part of a technical assistance project agreement between the United States and Bangladesh. CRL would be an autonomous body to implement a cooperative program of cholera research between the Government of Bangladesh and the Government of the United States acting through AID and the NIH.

From 1960 through Fiscal Year 1978, AID has provided $24 million to the Cholera Research Laboratory. Since the signing of an AID/HEW agreement on March 3, 1966, AID has provided $4,027,051 to NIH for the CRL. This excludes the two-year period 1971–72 when East Pakistan became Bangladesh. In Fiscal Year 1978 the total CRL budget was $2.5 million with AID providing $1.9 million core support. Of this $850,000 was transferred to NIH and used to pay the salaries of scientists under contract and for equipment, supplies, travel, and logistics. The remainder, $1.05 million, went for CRL local expenses. NIH, prior to 1970, provided positions and salaries for people under the NIH Visiting Program to spend time at the Dacca Laboratory, but when personnel ceilings were placed on NIH, this practice was discontinued. Thus, historically AID has provided about 85% of the funding for the CRL.

Scientific Contributions

The Cholera Research Laboratory has demonstrated its scientific value by its clinical research and field investigations in endemic areas. The studies revealed many of the abnormalities and intestinal functions which are involved in the development of symptoms of diarrhea, whether caused by the *Vibrio cholerae* or not. They clarified the abnormal dehydration and fluid loss which must be corrected in the treatment so that a dramatic survival rate can be achieved. Simplified treatment procedures have been developed and refined so that recovery is possible in a relatively primitive situation with minimal equipment and training. Factors in transmission of cholera have been examined in order to define how the United States can be safeguarded from a cholera epidemic.

Dr. A. S. Benenson (*32*) earlier, and then Dr. Wiley H. Mosley and his colleagues, conducting controlled field trials, showed that cholera vaccine is protective in an epidemic situation, but that protection is of a limited duration—up to about a year. Furthermore, prior administration of cholera vaccine had no beneficial effect on the clinical course of cholera. (*33*) (*34*) (*35*)

These findings were significant, nationally and internationally, i.e., for the United States and the World Health Organization. The PHS changed its regulations and no longer requires cholera vaccination for travelers coming to the United States from cholera-infected areas. The World Health Organization no longer recommends cholera vaccination for travel to or from cholera-infected areas.

United States public health practices and the high level of sanitation are considered to be the best deterrents to the spread of disease if introduced into the United States. The traveler's best protection against cholera is to avoid food and water that might be contaminated.

Dr. John Lindenbaum *et al* following up on work originally done by The Johns Hopkins University/International Center for Medical Research in Calcutta, confirmed that tetracycline was the drug of choice against *Vibrio cholerae* infection. Oral administration for 48 hours was effective clinically, shortening the duration and ending the excretion of the organism. (*36*)

Dr. Richard Cash and Dr. David Nalin, continuing work done by Dr. Robert Phillips and his colleagues of NAMRU-2 in Bangkok and the Philippines, (*37*) reported highly effective therapy using a

Top, **Matlab Bazar, East Pakistan—Police barge loaned to the Cholera Research Laboratory as its field hospital for vaccine studies. The main deck was a six-bed hospital and the second deck contained living quarters. Small boats were used by the Cholera Research Laboratory to transport patients, personnel, and supplies;** bottom, left to right: **Drs. A. Wahed, Colin MacLeod, Clifford Pease, A. D. Langmuir, Robert A. Phillips, and A. S. Benenson observing jet inoculation in the Cholera Research Laboratory vaccine field trial in a village near Matlab (1964). (Courtesy of the National Institutes of Health)**

hydration solution orally. They developed a formula for the use of local materials and demonstrated that many patients could be maintained with oral treatment. (*38*) (*39*) (*40*) UNICEF recognized this effective therapy and made available oral hydration packages. The World Health Organization (WHO) also revised its recommendations for control of cholera to include oral therapy for milder cases, or where intravenous solutions were not available, even for severe cases.

The long-range goal in cholera research is cholera control (eradication), and NIH has been seeking to improve the ability to immunize against cholera. The work of the Cholera Research Laboratory is closely related to NIH supported research and forms part of a continuum. The CRL has been addressing the fundamental question of the role of vaccine immunity, in particular anti-toxic and anti-bacterial immunities. NIH grantees isolated and purified a cholera toxin. Wyeth Laboratories, under contract to NIH, adapted and mass produced the cholera toxoid for field testing. The field testing in 1974 demonstrated that the purified toxoid had an effect to a limited extent, in particular in the five to fourteen year range, which is an age group very susceptible to cholera. Wellcome Laboratories has prepared a toxoid/vaccine mixture which has been awaiting field trials pending a decision on the future of the CRL.

The Future: An International Laboratory

In November 1976, an AID study proposed that the Cholera Research Laboratory become a nonprofit International Institute for Health, Nutrition and Population Research (IIHNPR) to be located in Dacca, Bangladesh. The IIHNPR would serve as a world center to develop new and improved technologies for the reduction of morbidity and mortality resulting from diseases, for the reduction of malnutrition, and for the purpose of slowing population growth. The center would also develop demonstration methods for the application of existing technologies.

The IIHNPR, operating under a charter from the Government of Bangladesh, would be internationally controlled, supported by participating nations, agencies and organizations. Governance would be by a Board of Trustees and the Institute would have a Technical Advisory Committee advisory to the Board and its Director. The budget estimate for Fiscal Year 1979 was $2.5 million with the assumption that the United States and Bangladesh, together with other donor nations, foundations, international organizations and institutions, such as the Ford Foundation, The Rockefeller Foundation, and the International Bank for Reconstruction and Development (IBRD), would provide long-term financial support to cover operating and capital costs expected to reach a level of $4 to $5 million annually by FY 1983.

There were two issues: the scope and organizational status. A center whose mission is "health, nutrition, and population research" was too broad; as was one in "medical research." An "International Center for Diarrheal Disease Research, Bangladesh," was apparently acceptable with the inclusion of nutrition and fertility studies related to diarrhea. AID was interested in moving away from a "bilateral technical assistance" arrangement to one where AID would be one of many participants funding an International Center.

This raises some very fundamental and important questions about "institution building." Once an institution is created, it requires maintenance. Maintenance requires resources (people, equipment and funds). The CRL has had the benefit of NIH scientific expertise and AID funding—and one has been dependent upon the other. Over the years, however, the mandates and responsibilities of United States institutions may change. In this case, the United States scientific interest has remained constant as has AID's interest in the substantive work of the CRL. However, AID now wished to fund under different conditions—a change from a bilateral assistance program to an international cooperative arrangement.

The International Center for Diarrheal Disease Research/Bangladesh (ICDDR/B) was formally inaugurated on June 26, 1979 as an independent autonomous international Center with an international Board of Trustees. The Government of Bangladesh created the Center by an ordinance and a Memorandum of Understanding which was signed by 16 countries and organizations. The Center will occupy the physical facilities of the former Cholera Research Laboratory, including the hospital and the laboratories and will continue the field areas at Matlab and Teknaf.

Dr. William Greenough who was formerly Scientific Director of the CRL was named Director of the ICDDR/B for the first year, and Dr. Julie Sulianti Saroso, Advisor to the Minister of Health of Indonesia, was named Chairman of the Board of Trustees. A budget of $27 million has been proposed for a five-year period. Of this, approximately $17 million has been pledged from the United Nations Development Program/World Health Organization, the Ford Foundation, the United Nations Fund for Population Activities and the Governments of Bangladesh, the United States and the United

Kingdom. The first year's operational budget of $3.5 million was approved.

The program of the ICDDR/B will emphasize diarrheal diseases and related areas in nutrition and fertility and will include basic and applied research and training. The diarrheal disease program will involve a diseases transmission working group, a host resistance working group, and a diarrhea pathogenesis and therapy working group. The population program will examine demographic surveillance, determinants of fertility and mortality, impact of fertility-mortality interventions and reproduction endocrinology. The nutrition program will include diarrhea control and nutrition, feeding practices, reduction of food wastage, breast feeding, and epidemiological studies of energy protein malnutrition.

On June 30, 1979 the U. S. Agency for International Development granted $500,000 from Fiscal Year 1979 funds to the Cholera Research Laboratory to cover conversion to the new International Center. It is anticipated that AID will provide $1.9 million annually for five years to the ICDDR/B. On September 20, 1979, AID granted $160,000 of Fiscal Year 1979 funds to the ICDDR/B, and an award of $1.9 million of AID's Fiscal Year 1980 funds is pending.

Communications: The PAHO Regional Library

Need for Biomedical Information

Biomedical information is now contained in approximately 20,000 journals published annually throughout the world. In addition, there are hundreds of secondary abstracting and indexing services which draw upon these periodicals to provide information services.

Biomedical information service is dependent upon people, the scientific record, equipment, facilities, and technology. Its availability and application are to enhance the delivery of health services for improved health. Therefore, the status of health in developing countries must be the background against which realistic information programs are developed. Selectivity of information, user involvement, and a combination of national and regional approaches to biomedical information and communication should be part of the design of information services.

The concept of selectivity from a large body of knowledge is, I believe, most important in developing a program of information services for and in developing countries. It rejects as unnecessary and expensive the complete transfer from one country to another of information systems and their administrative settings. It suggests that there be a regional resource which may be drawn upon as needed, so that not every country needs to generate and maintain its own operational information system. It encourages leaders in developing countries to be independent and informed decision-makers and not solely passive recipients of judgments made by others—whether scientists, librarians, publishers of primary journals, or purveyors of information services. "Selectivity" allows a handtailoring of information services based on recognized needs of the ultimate user of these services—the indigenous health professional.

National Biomedical Information Centers

There have been serious efforts on the part of many countries to develop information activities. Perhaps some of these attempts should be documented in the literature to assist others in facing realities. Examples exist of countries which are geographically diverse and at various stages of economic and health development. Their efforts to establish a national biomedical information center ended in failure.

The lesson to be learned from these failures is that there are basic commitments essential not only for implementing, but for initiating such a program. They are (1) a formal official commitment to establish a national resource (or a consortium), (2) allocation of personnel and resources, and (3) the involvement of the professional user. Once these decisions and actions are taken, there should be specialized training of personnel, a collection of basic books and journals from which information services can be developed, and a facility. Thus, actual planning and development of these centers require more than broad and philosophical concepts; special attention to problem solving is necessary.

Regional Approaches

A regional library or information center is essentially a systematic sharing and utilization of resources to provide effective and efficient services. The resources include manpower, funding, and technology. This is the concept of a network, the underlying principle of which is "cooperative service."

The regional function may be based on a national resource or an existing center of excellence which wishes to extend services outside its national boundaries. The alternative mechanism for achieving regionalization is under the auspices of international or regional organizations.

A regional library should not be competitive with national and local institutions but should be a stimulus to strengthen them. It should provide a kind and level of service not achievable by each country independently. The balance between centralized activities at the regional level and decentralized activities at the national level will be dependent on capabilities at the national level, the potential for national growth, and an awareness that international cooperation can be a most effective means to achieve an overall increase in self-sufficiency. Those functions which can be performed at the regional level would draw upon a comprehensive collection in biomedicine and the talents of a staff trained in modern methods of information handling. This approach has been tried, tested, and proven feasible in the establishment of a Regional Library of Medicine (BIREME) by the Pan American Health Organization (PAHO) in Sao Paulo, Brazil.

PAHO Regional Library of Medicine

In 1963 the PAHO Advisory Committee on Medical Research discussed the problem of Latin American biomedical communications. Subsequently, representatives from the National Library of Medicine (a Federal agency), The Rockefeller Foundation (a private nonprofit organization), and PAHO (an intergovernmental organization) met to discuss these problems. A Latin American Regional Medical Library was suggested with appropriate participation from PAHO, the United States Book Exchange, the National Library of Medicine, The Rockefeller Foundation, the Agency for International Development, the Department of State, and the academic community. After further discussion and a study of sites and resources by a team of experts, the PAHO Advisory Committee on Medical Research recommended in June 1965 that PAHO establish a Regional Library of Medicine.

The recommendation that PAHO establish such a Library had a dual significance. It reaffirmed the importance of biomedical communications to the advancement of research and health care delivery, and it initiated an international approach to biomedical communications.

Explicit in the Advisory Committee's recommendation was that the Library be a PAHO entity. Implicit was the concept that goals not achievable at a national level are possible through multinational cooperation. The international interdependency would be based on mutual service and benefit, not on intricate administrative relationships.

For a year and a half the project lay dormant due to difficulties in securing resources and choosing a site. In February 1967, NLM and PAHO representatives explored with the Government of Brazil the possibility of developing a Regional Library of Medicine in that country. The Brazilian Ministries of Education and Health committed $80,000 annually for three years. The Escola Paulista School of Medicine would provide a library building, necessary alterations, and staff. PAHO would give administrative and organizational support plus a specific 1968 budget provision for $25,000. NLM would provide its excess journal credits at the United States Book Exchange (USBE) which the Regional Library could use under a proposed NLM/PAHO contract of $50,000. These monies would be spent within the United States to develop a strong and effective periodical and book collection at the Regional Library of Medicine.

BIREME is an interesting example of cooperation, with funding over the years from PAHO, the Government of Brazil, the Commonwealth Fund, and the Kellogg Foundation. In March 1967, the Pan American Health Organization and the Ministries of Health and Education in Brazil signed an agreement for three years. Preliminary staffing was developed during 1967 and 1968. In January 1968 the PAHO-NLM contract for $50,000 was signed; and in May 1968 a Scientific Advisory Committee to BIREME was established. The first full-time Director, Dr. Amador Neghme, former Dean of the Faculty of Medicine at the University of Chile in Santiago, was appointed in 1969 and was succeeded by Dr. Abraam Sonis in 1976. The Library has been operational for 10 years and has assumed new functions and a constantly increasing work load. (*41*) The accomplishments of the Library are directly traceable to the support provided by PAHO and Brazil. Funding for BIREME has increased from $150,000 in 1969 to $650,000 in 1974 and $1.25 million in 1978. About 16% of BIREME's annual budget is provided by PAHO's regular budget, 7% from WHO, and 77% from external sources including federal, state and local governments of Brazil, and philanthropic agencies.

The staff of the Library has increased from 23 in 1969 to 71 in 1978. The most significant aspect of this increase is not quantitative but qualitative. Physicians and trained library professionals have become staff members. BIREME provides reference services, specialized bibliographies, and interlibrary loans of literature not only within Brazil, but to other South American countries. Since 1969, BIREME has provided 288,000 loans, prepared 8,255 special bibliographies, obtained and donated 309,000 journal issues to other Latin American libraries, and has provided specialized training to 324 Latin librarians. A Brazilian library network of eight subcenters has been initiated, but all need increased resources to perform their role more effectively. More recently BIREME has undertaken to develop specialized audiovisual and computer-based reference services.

The present and potential relationship of BIREME to all South American countries is worth examining. The Latin American Ministers of Health, meeting in 1972, recommended for the decade 1971–80 the establishment of national documentation systems with a linkage to BIREME: an Inter-American Biomedical Communications Network. The actual accomplishment of this network will be dependent on a plan to reinforce complementary national and regional efforts. The vastness of this task is illustrated by a 1971 BIREME survey of 231 biomedical libraries in 15 Latin countries. An average of 137 current journal titles and 4 reference books were owned by each library. This survey emphasized not only the dire needs, but the extensive resources that would be necessary to remedy the present deficiencies.

Since the passage of the Ministerial Resolution, PAHO and BIREME have been encouraging formal relationships between the Regional Library of Medicine and all South American countries. Agreements have been signed with Argentina, Chile, Uruguay, Venezuela, Peru and Colombia. Much still needs to be done to crystallize these relationships into effective service linkages. But this is easier to accomplish than through a global approach such as the UNESCO information program, UNISIST, described in Chapter II, page 83.

The actual development of a biomedical communications network will depend upon a number of factors: the relationship of BIREME to medical and library communities in South America, the supportive role of governments, and the allocation of human and fiscal resources. A network may not be easily achieved because the participant must give up absolute autonomy to participate in the sharing of resources. Needed are informed decision-makers, a clear understanding of the needs of the scientific users, a commitment of fiscal and personnel resources, the application of technology, and the spirit of cooperation. Beyond these considerations, there are external problems relating to the mechanisms for information transfer, such as transportation, postal service, and telecommunications.

To a developing country faced with epidemics or severe health problems, a national biomedical information center may appear to be a luxury rather than a necessity. There is competition for limited resources between urgent daily needs and longer range requirements. It requires far-sighted leadership to respond to the immediate while simultaneously planning and building for the future. A national center can function cooperatively with a regional resource from which specialized information and services can be drawn.

There need be no restriction of services to journals or books alone; other modalities (print and nonprint) also can be used. Once an information service is operating efficiently and effectively, it can be used as the basis for programs in other subject areas. The information service, if developed on a modular basis, thus enables a country to select its own priorities and develop information activities that are needed, useful, and economical.

With recent and projected advances in telecommunications, other possibilities can be considered for the future. Suggestions have been made that developing countries will be able to use telecommunication linkages to search online data bases thousands of miles away, and then order a document online. Some view this as a replacement for the library. I believe, however, that a more realistic approach will be a combination of telecommunication linkages with access points at well-placed regional resources.

Observations

The foregoing examples have included direct support (manpower, funds), institution building, and a regional concept in cooperation with developing countries.

One clear-cut conclusion is that a long-term involvement is essential in many of these endeavors. What kind of criteria and plan can be developed to create or strengthen a foreign institution so that it does not become a permanent appendage to a United States institution's budget? It may, at best, become a semipermanent attachment with a resulting loss of flexibility in overall resource allocation by the United States institution. How does one determine the duration of this involvement, which is a sensitive issue. An example drawn from the experiences of The Rockefeller Foundation is illustrative of the difficulties.

In 1916, a Commission under the auspices of The Rockefeller Foundation, studied medical education in Brazil. Dr. Robert Watson indicated that the Commission commented:

> In many ways the Sao Paulo Faculty of Medicine suggests that it may repeat in Brazil the history of the Johns Hopkins Medical School in the United States and become a revivifying influence in Brazilian medicine. To accomplish this, however, it must have more foreign trained men in its laboratories and funds to equip adequately these laboratories for individual work by the student. Any attempt to help medical education in Brazil should, in our opinion, take advantage of the opportunity offered at Sao Paulo.

In 15 years (1919–34), Rockefeller provided $1,056,000, of which $900,000 was for construction and equipment of a new science building (1927–28). A total investment of $1,435,000 was made in the school plus $250,000 for fellowships for foreign training of staff. This support was predicated on the understanding:

> that there would be a two-year premedical course, all basic science teachers would be full-time, and that provision would be made for internship and residency training in the school's hospital. This was the first school in Latin America with full-time teachers.

Dr. Robert Watson received a comment from a Brazilian colleague on this cooperation between The Rockefeller Foundation and the Faculty of Medicine, University of Sao Paulo:

> The economists say that the underdeveloped countries have their critical phase, when they still do not manage to overcome their "cycle of misery," although some sectors present indices of relatively good increase. It appears that the same thing occurs with scientific advancement . . . . We can present progress; however, it will only be effective when we manage to overcome the "cycle of incompetence or of scientific and technical underdevelopment." It appears that in various sectors . . . we are still in this critical phase, and if we do not have efficient assistance, we will regress and will have to start anew from scratch. This is what happened at the Faculty of Medicine of the University of Sao Paulo when The Rockefeller Foundation left off helping it for motives which serve no purpose to recall. You stopped too soon . . . [and] . . . the Faculty suffered a regression. (*42*)

Dr. Watson believed that this Rockefeller program delineated some principles which related to medical education programs but we can also apply them to medical research and institution building. They are:

> 1. The basic objective of support is to reinforce and to create indigenous leadership . . .
> 2. As much knowledge as possible should be obtained about a project before a commitment is made to support it.
> 3. The cost of a project should be shared, and the major share should be borne by the recipient of assistance.
> 4. When foreign staff is sent to assist with the development of a project, only the best should be sent, and no time limit should be set for an assignment.
> 5. No time limit should be set to accomplish long-range objectives, but every effort should be made to reach them expeditiously. (*43*)

Chapter VIII

ANALYZING THE PAST TO PREPARE FOR THE FUTURE

> *Sir Edward Parry and his party were going straight towards the pole in one of their arctic expeditions, travelling at the rate of ten miles a day. But the ice over which they travelled was drifting straight towards the equator, at the rate of twelve miles a day, and yet no man among them would have known that he was travelling two miles a day backward unless he had lifted his eyes from the track in which he was plodding. It is not only going backward that the plain practical workman is liable to, if he will not look up and look around; he may go forward to ends he little dreams of.*
>
> OLIVER WENDELL HOLMES (*1*)

EXAMINING AND ANALYZING the past is more than an avocation or even a duty; it is a necessity in order to pursue those actions which will, in fact, represent progress and not unintentional repetition. Today is unique in that it can determine tomorrow, but equally important is the fact that today is the product of yesterday.

The preceding chapters have described some historical highlights in the evolution and development of United States programs at the national and international levels in health, biomedical research, and communications. That these national resources acquired international dimensions was natural; but the process has been hastened by social, political and economic pressures.

Current United States activities in international health, biomedical research and communications are not derivative from tidy, logical, direct developments. Numerous principles, policies, programs and legislation for United States involvement in international health programs have been recommended over the past 30 years. Many of these recommendations are valid today. Some have received attention; some have been acted upon; but most rest undisturbed and even unknown.

There has been significant progress, but perhaps more could have been achieved if the enthusiasm, studies and proposals which occurred periodically had produced a continuity on which to build and advance. An analysis of the ebb and flow of the independent, the collaborative and the antagonistic elements which have all been part of this history, may provide a factual basis not only for avoiding a repetition of the past but for stimulating constructive action for the future.

A Look Back (1940–77)

From recent history—the experiences over the last 40 years—we can see recurring themes, recurring issues, recurring "non-solutions," and some progress. Our Presidents have been interested in and concerned with international science and international health not only to advance these areas but because of their belief that progress in science and in health matters can contribute to the alleviation, if not the solution, of broader social, economic, political and security issues. President Truman's "Point Four Program," President Eisenhower's "Science for Peace," President Kennedy's "Alliance for Progress," President Johnson's "Improvement of the life of man," President Nixon's "Fighting disease in cooperation with our political adversaries," and President Carter's "Health is a basic human right" reflect their perspectives that international science and health programs can serve the individual, the nation, and the world.

Over the years, United States officials have proudly and publicly described United States dedication to improving health conditions globally; and these statements have had great appeal. However, they often take the form of conceptual presentations and not specific commitments because they are usually without the benefit of a prior assessment of costs and necessary resources. The periodic increased visibility for international health activities derives from the fact that many of our Presidents and foreign policy officials have viewed and continue to view international health activities as an opportunity to serve other purposes. This concept seems to be becoming more acceptable to health administrators.

Individual Stimulus and Institutional Conflict

Individuals in positions of authority have often provided an incentive for international activities. Senator Hubert Humphrey with his Subcommittee on Reorganization and International Organizations examined the future of international biomedical research (1959); Senator Lister Hill and Congressman John Fogarty introduced new legislation in international health research (1959); President John Kennedy recognized the broader opportunities provided by international health collaboration (1961); President Johnson proposed an international Health Act (1966). The interest generated, however, by these initiatives did not result in broad new programs or substantial increased commitments of resources for existing ones.

Senator Humphrey's Subcommittee held extensive hearings here and abroad which produced a series of noteworthy documents, but it viewed appropriations or legislation to be outside of its purview. Senator Lister Hill's legislative proposal in 1959 to establish United States "domestic machinery for maximum mobilization of its health research resources" (2) failed because of Administration policies on budget constraints. Congress subsequently passed the International Health Research Act of 1960 which retained only the title of the Joint Resolution initiated by Senator Lister Hill and Congressman John Fogarty. The authority contained in the Act for the conduct of research for world benefit is vested in the President and he has delegated this authority only three times to HEW. Efforts to authorize HEW to conduct research for world benefit have been essentially nullified by an interagency struggle between the Office of Management and Budget (OMB), HEW and State.

Fiscal constraints on the flow of United States monies abroad in 1963 put a damper on President Kennedy's emphasis on international health activities. President Johnson's proposed International Health Act in 1966 emphasized a worldwide attack on hunger and disease but did not emerge from the House Rules Committee. His companion piece of proposed legislation, the International Education Act, did become law but was not funded.

HEW efforts for new legislation in recent years have been effectively blocked by the OMB for two reasons—budget limitations and OMB's interpretation of the division of organizational and functional responsibility between State and HEW.

Thus, the process over a period of time has become cyclical. The Legislative and Executive branches have not been able to agree on a course of action because the enthusiasm of one branch of Government has been asynchronous with that of the other. Furthermore, the Office of Management and Budget has deterred any Department- or Agency-generated initiatives which would entail increased expenditures abroad.

The Gap Between Science and Foreign Policy

Mechanisms for bridging the gap between the technical and foreign policy agencies have varied from informal to formal over the years. Concern by Mr. Laves of the Bureau of the Budget that State, Labor, and the Federal Security Agency were moving to achieve independent goals within the United Nations, stimulated the establishment in 1946 of an Interdepartmental Committee on International Social Policy with a Subcommittee on Health. The latter's principal concerns related to the establishment of, and United States relationships to, a multilateral health organization.

In 1948 physicians were serving in a dual capacity in the International Health Offices of the Public Health Service (HEW) and the Department of State. These officials developed position papers, with particular reference to United States participation in the then established World Health Organization, provided advice and ultimately established a basis for some decision-making. The Hoover Commission Task Force No. 3 (Nonmilitary Interdepartmental Relationships) suggested in 1949 that the formal Subcommittee on International Health be abolished because the dual role mechanism of PHS officers serving in both PHS and State was considered to be so effective. The Task Force recommended that this same approach be utilized for other subject areas involving State and other Departments and Agencies.

The establishment of a Science Advisor to the Secretary of State, a Science Office in the State Department and the appointment of Science Attachés in some of our Embassies in the late 1950s provided a beginning interaction between State and other Departments and Agencies, and also with the scientific community. Interagency communications improved and the nongovernmental science community had an identifiable office to contact on matters relating to science and foreign policy. However, this role of responding both to scientists' needs and foreign policy considerations within an organization whose primary purpose is foreign policy and diplomacy is not an easy task, and in fact the opposing views are sometimes irreconcilable. In 1958, the senior science position in State was entitled Science Advisor to the Secretary of State and the role was in fact advisory. Today, the position is an Assistant Secretary, Bureau of Oceans and International Environmental and Scientific Affairs reporting to an Under Secretary for Security Assistance, Science and Technology. The functions are a mixture of advice and operations, and the staff is no longer drawn principally from the scientific community.

In 1960 a formal Interdepartmental Committee on International Health Policy was established at the request of then Secretary of HEW Arthur Flemming. The Committee functioned for one year, and was abolished during the early days of a new Administration. In a formal report, which was both its first and its last, the Committee viewed international health within the context of its understanding of United States foreign policy which was twofold—the security and welfare of the United States, and a peaceful, prosperous international order which would encourage free institutions based on "the recognition and advancement of human rights." The Committee stated that international health programs may have various objectives: social and humanitarian, political, economic and medical; and the Committee stated them in that order (Chapter IV, pp. 160–61). A subcommittee examined specific programs and performed analyses for consideration by the parent Committee. Secretary Flemming, who served as Chairman, expressed the opinion that one of the most significant items considered by the Interdepartmental Committee was United States support for a malaria eradication program.

International Mechanisms for Cooperation

There were three significant events about thirty-five years ago: the creation of the United States Institute of Inter-American Affairs which used a bilateral mechanism to plan and execute public health and sanitation projects in Latin America (1942); the awarding of international research grants to foreign institutions by the National Institutes of Health (1947); and the establishment of a world governmental body for health (WHO, 1945–48) with enthusiastic support from the United States. These three developments were forerunners of mechanisms which the United States uses today—

bilateral governmental agreements, unilateral funding, and an international governmental health organization.

Of the three mechanisms for international cooperation—unilateral, bilateral, and multilateral—the NIH unilateral funding is probably devoid of political considerations in terms of program content but could have political ramifications in its execution. The latter can occur if the funding supplants another country's own support of research or distorts the scientific profile of the recipient country in terms of manpower usage or productivity. The NIH programs have consisted primarily of funding research abroad and providing a mechanism for communications through fellowships, visiting scientists and conferences. The level of funding has been influenced periodically by balance of payments problems and restrictions preventing the flow of dollar funds abroad.

With the exception of the NLM *quid-pro-quo* bilateral arrangements at the technical/institutional levels, the bilateral mechanism consistently appears to have had its origin in political settings; and its implementation may vary depending upon the level of administration, the nature of the countries involved and program content. The Latin American Ministers of Foreign Policy recommended the bilateral mechanism in 1942 for health and technical cooperation which was executed for the United States by a nonprofit institution funded by the Federal Government, the Institute of Inter-American Affairs (IIAA). The IIAA initiated 18 agreements in two years. These agreements were executed so that funding and staffing were shared by the United States and the participating country, with a pattern of increasing the funding and staffing from the country with a corresponding decrease from the United States. During the period 1942–51, these 18 agreements cost $107 million, with one-third or $35.6 million provided by the United States. This can be compared to the estimated $48 million which the United States Agency for International Development has spent in one year (FY 1979) for health, population, and nutrition programs in Latin America.

In 1961, the U.S.-Japan Agreement for Cooperation in Science and Technology became the forerunner of the type of agreement often now exercised between the United States and other countries. There are 18 such formal agreements for which the National Science Foundation has been designated as the executive agency. There are 18 where HEW is either a direct signatory or is responsible for the health component of an overall science and technology agreement. Funding for bilateral agreements is included within the National Science Foundation's international cooperative science programs budget; HEW has no specified dollar appropriation for its health agreements. Although there may be differences in content in the health bilateral agreements, the HEW/PHS has used this mechanism with no fundamental variation for allies, adversaries, developed and developing countries. The exception is the National Library of Medicine. As an extension of its exchange of materials in the conventional mode, NLM proceeded in 1966 to share its computerized bibliographic information storage and retrieval systems with other countries on a *quid-pro-quo* basis in exchange for indexing of biomedical literature which is part of the data base.

With regard to multilateral mechanisms, Public Health Service personnel were intimately involved in the development of WHO and PAHO. The Surgeons General of the PHS served as the Directors of the Pan American Sanitary Bureau from its beginning in 1902 until 1948. Dr. Thomas Parran, Surgeon General of the PHS and his staff participated in 1945–47 in the creation of WHO. As Chairman of the 1946 International Health Conference preparing for the establishment of the World Health Organization, Dr. Parran stated that international cooperation for peace was difficult, but that health was one "part of the whole" which could be separated out for international collaboration and agreement.

Thus, WHO has often been looked upon as the meeting ground where common health problems can be addressed with single-minded dedication and purpose. However, the matter of program emphasis, the inherent inertia of an intergovernmental international organization, political considerations and political rivalries have intruded and have in some instances deterred WHO from a high degree of efficiency and effectiveness. Periodically the United States has expressed enthusiasm for the World Health Organization as a mechanism for the conduct of international programs. In 1958 the United States not only encouraged but provided funds for WHO to examine its responsibility for medical research; and the National Institutes of Health assigned staff to WHO to help develop a program plan. The results did not meet original expectations and part of this was due to the fact that the original expectations may not have been completely reasonable.

Confronted with this variety of mechanisms—unilateral, bilateral, multilateral—the United States does not appear to have made a rigorous assessment leading toward a policy which favors the selection of a mechanism best suited to achieve overall United States health objectives and programs.

The Milieu of Today (1977–80)

A Call for New Initiatives

The current stirrings of interest in international health activities by the White House, Congress, and Federal Departments were stimulated by one individual, Dr. Peter Bourne, who began to express his views on the value of "medical diplomacy" and the "absence" of an international health policy. Both the nature of the comments and the fact that the spokesman was the President's Assistant for Health Issues prompted action, reaction, debate, studies and a number of statements from both the Executive and Legislative branches.

In response to requests from Dr. Bourne's office, task groups were established in 1977 and agencies suggested new initiatives in international health for consideration within program and budget channels. Examples of the kinds of initiatives identified by the various Institutes at the National Institutes of Health were: a collaborative research effort on the health and the mental status of aged populations; research in tropical medicine; human nutrition; oral disease and participation with organizations such as the World Health Organization and the Pan American Health Organization for setting research priorities in the etiology, prevention, diagnosis and treatment of dental caries, periodontal diseases, soft tissue diseases and cranial-facial anomalies; research centers in developing areas for control and eradication of keratomalacia, xeropthalmia and diseases of malnutrition; and cardiovascular research with the People's Republic of China.

HEW identified as Departmental initiatives the following: establish a global epidemic intelligence service; support WHO's new program for research and training in tropical diseases; develop a multiple antigen immunization program worldwide; establish a health unit to respond to disasters around the world; obtain the cooperation and participation of the multinational pharmaceutical industry in meeting drug needs of the developing world; and establish nutrition surveillance and research programs. A review was made to see whether funding these activities would be a problem, whether some of these initiatives could be undertaken within existing budgets, or whether requests should be incorporated within FY 1979 or FY 1980 budgets. There was no increase in FY 1979, nor in FY 1980 due to restrictions from both the Office of Management and Budget and Congress.

Competing Studies

Within two years there were three independently conducted studies, representing the three branches of government: the Office of the President, (*3*) an executive department (HEW), (*4*) and the legislative branch which had commissioned the Institute of Medicine to perform a study. (*5*) These products vary in their relative emphasis on the substance, the organization, and the management of international health programs. Research received comparatively little attention, and biomedical communications no attention. The studies contained no new concepts, but they are presented persuasively or in slightly different contexts.

The Institute of Medicine (IOM) singled out three recommendations, two of which related to legislative authority and one to interagency relationships: HEW authorization for R & D activities in international health; AID authorization for long-term flexible relationships with United States academic institutions; and the establishment of mechanisms (undefined) within the Executive Branch for "international health policy development, program planning, and coordination." The IOM study did identify major health problems as communicable diseases, nutrition, population, mental health, oral diseases and abnormalities; and it placed international health problems within the context of health and ecologic, socioeconomic and cultural factors and emphasized the need to address health care. The Committee did not examine issues such as the extent to which the United States should engage in international health activities or the level of resources which would have to be committed.

Dr. Peter Bourne commented on the inadequacy of existing government structure and authorities, the need for a legislative and executive commitment to international health; incorporating a health mission for Department of Defense (DOD) overseas; examining career systems to ensure their capacity for the evaluation of technology transfer; revising HEW and PHS authority relating to global health; and training programs to meet the health manpower requirements of developing nations. Interagency mechanisms or focal points were suggested to control or coordinate policy formulation and the government's relationship to the private sector. Requirements would exist for annual reports, inventories and the Government would serve as a clearinghouse for international health throughout the world. In Dr. Bourne's view, a constituency was needed to sustain international health efforts.

Of the many recommendations by Dr. Bourne, several related to substantive programs: (1) goals were to be identified—both short-

and long-term—for health, nutrition, and family planning and (2) the research talents of the United States were to be harnessed to grapple with world disease. Dr. Bourne did not identify what human and fiscal resources would be necessary to implement his suggestions.

The HEW study "An International Health Policy for the Department of Health, Education, and Welfare" was an internal document and was essentially devoted to an inventory of current activities, potential new activities, and constituted a response to Dr. Bourne by stating that HEW, and not the State Department, should be the lead agency in international health programs.

Senator Javits' proposed legislation in 1978 and again in 1979 varied somewhat. However, both emphasized administrative and coordinating structures and mechanisms, strengthening the role of the Office of International Health for budget and program review, interagency coordination, PHS authorization to conduct activities for world benefit, a cadre of health manpower, and a nongovernment organization to bridge the government/private relationships. Senator Kennedy was successful in amending the Foreign Assistance Act to identify health as a component of foreign assistance distinct from the population program, and it is anticipated that he will introduce legislation relating to international biomedical research and international health.

Global Visibility and National Commitment

Since its inception, the World Health Organization has provided a global forum for United States officials, including Presidents. Recently, the statements have been concerned with the poorest of the world's poor; and all have concentrated on WHO as a vehicle for program execution. In 1977 President Carter sent a message to the World Health Assembly and Senator Edward Kennedy addressed the WHO Medical Society. In 1978 and 1979 Secretary Califano led the United States Delegations to WHO, and Mrs. Rosalynn Carter accompanied the United States Delegation in 1979 and addressed the WHO Medical Society. United States officials have tried to illustrate that our scope and support of international health activities, both direct and through WHO, are consistent with WHO goals and programs. However, this endeavor has been more of a description and recharacterization of existing activities rather than new undertakings with increased commitments of funds and human resources.

The debate continues on policy formulation, coordination, and on who is the leading spokesman for international health: the

Office of the President? State? or HEW? Coordination has received not only attention but is the one item that has been acted upon. Within HEW, an International Health Policy Board has been established for decision-making on various components of HEW international programs. A Subcommittee on International Health has been established under the Development Coordination Committee for interagency deliberation.

Thus, within a three year period, there have been three studies representing the three branches of the Government; three HEW bilateral health agreements (Italy, the People's Republic of China, and Israel); proposed legislation; vocal emphasis on international health; rediscovery of WHO; and increased coordination intergovernmentally with a Subcommittee on Health of the Development Coordination Committee and within HEW by the International Policy Board. In contrast, there have been no new broad initiatives accompanied by a commitment of resources.

Repetition or Progress

In 1959 one of the major justifications for establishing an interdepartmental coordinating committee was that United States international health activities involved the expenditure of about $100 million a year and the participation and interest of several agencies. Twenty years later, 22 United States agencies expended an estimated $528 million (a fivefold increase) and this has been viewed by some as disorganization within the Federal Government.

Table 72 gives a general comparison of the recommendations on international health activities by (1) the Interdepartmental Committee on International Health Policy, chaired by Secretary of HEW Arthur Flemming (1960), (2) the Committee on Health, chaired by Surgeon General Leroy Burney of the White House Conference on International Cooperation (1965), (3) the International Health Act proposed by President Johnson (1966), (4) Secretary of HEW Joseph Califano's speech to the World Health Assembly (1978), and (5) the Institute of Medicine Study (1978). Specific aspects of these recommendations are given in Chapters III and IV. However, an overall comparison suggests that the United States has been sensitive to international health needs, has had continuing concern, but has not always addressed the issue of availability of resources and responded with active programs.

Health manpower development and research in both the United States and developing countries, an international health career serv-

Table 72.—Comparison of Principal Recommendations for International Health Activities (1960–1978)

Topic	Inter-departmental Committee, Int'l Health Policy 1960	International Cooperation Year, Health 1965	Proposed Int'l. Health Act (Johnson) 1966	Califano WHO Address 1978	Institute of Medicine Study 1978
Nutrition (Malnutrition)	×	×	×	×	×
Health manpower developing nations	×	×	×	×	
U.S. int'l career service in health		×	×	×	
Medical research (Int'l health)	×	×		× (Trop. dis.)	× (Com. dis.)
Disease control and eradication	×	×	×	×	×
Population	×	×	×	×	×
Exchange of personnel and literature	×				
Safe adequate water supply (plus sanitation)	×			×	
Public health	×				
Primary health care				×	
Increased PHS role in international health (HEW)		×		× U.S. goal	×
Nongovernmental & private organizations		×	×	×	
Environmental hazards				×	
Blindness				×	
Mental health				×	×
Oral diseases				×	×

ice and international health cooperation, nutrition, disease control and eradication, research, population problems, public health, safe water and sanitation were all identified as major areas 20 years ago and have been recurring themes. Additional topics introduced by Secretary Califano in his 1978 WHO address were environmental hazards, blindness, mental health and oral diseases. Exchanges of personnel and literature were mentioned only in the 1960 recommendations made by the Interdepartmental Committee on International Health Policy.

In addition to these general program recommendations, government structure, functions, and control and coordination mechanisms have been noted. Missing in all of these reports, studies and proposals are data which would document the need for resources (human and fiscal) and a realistic assessment of the length of time required to initiate and execute programs. Each one of these program areas deserves an analysis over the period of the last 20–30 years to determine what the United States has done and failed to do, and this process might provide a basis for future decisions and action. There is an unresolved and continuing dilemma. Do we perform international programs for the United States? for international benefit? or for both? and which agency should fund and execute these programs?

The multiplicity of talents of the many governmental and nongovernmental organizations tends to generate a United States belief that there is no one problem which we cannot solve. However, this broad scale approach might better be adjusted to become a clear statement of what we can do in research, information and health; and then examine how such can be executed within the framework of foreign policy with a selection of those countries to receive special attention. In 1942, the United States believed it had launched an effective program in Liberia with a potential for real accomplishment. In 1980, Liberia is faced with many of the same diseases and continuing practical problems such as poor housing and transportation, indicating once more that solving many health problems is dependent upon actions external to the health scene.

Enthusiasm peaks with some regularity: 1948, when the United States joined the World Health Organization; 1960, with a proposed international health research act; 1966, with a Presidentially-proposed international health act; 1972, with the use of health to improve relations with our political adversaries, particularly the Communist States of Eastern Europe; and again, in 1977, with health declared a basic human right and the desire of many to establish health as an identifiable integral element of foreign policy and development.

Our heritage of activity from the last forty years is at least 18 bilateral agreements for which no specific funding has been designated, an increase in the coordination mechanisms both at the intergovernmental and intra-HEW levels, a number of studies which seem to approach the problem *de novo*, and recommendations and expressions for increased United States participation in international health programs without the benefit of analysis regarding funds and manpower requirements.

Issues

International Research, Communications, and Health Differ

A fundamental issue which appears to go unnoticed as one pursues international cooperation is that programs in research, communications, and health have similarities and differences in philosophy, content, objectives and execution. United States programs in these areas have developed consistent with their nature, and their patterns include independence, some correlation and integration, and a periodic effort for mutual reinforcement. Standardization of approach and implementation may be neither desirable nor possible. Once these differences are admitted as being significant, then each of these areas separately and in combination should be examined in terms of motivation, cooperation (formerly "assistance") with the developing world, cooperation with scientifically-sophisticated countries, policies and goals, and whether the structure, processes, and resources exist to conceive, initiate and implement meaningful programs.

Today, United States international health programs are primarily oriented toward the developing world; international research toward the developed world; and biomedical information toward an international biomedical communication network among developed nations. The role of the developing world vis-a-vis biomedical research and communications is complex, and no facile solutions have been identified in terms of the developing countries being both generators and users. Historically, interference in trade caused by communicable diseases and epidemics was the stimulus for quarantine measures which were the first steps toward international health programs. Conferences, governmental conventions, bureaus and organizations came along and "health" in an international organizational setting such as the World Health Organization (WHO) has gradually encompassed not only public health and medicine but biomedical research and information. Most recently, the priority given by WHO to technical cooperation with developing countries is a principal determinant in the selection of WHO priorities, programs and activities.

United States biomedical research within the last 200 years has moved away from sole dependence on Europe to international stature. Twenty years ago, the United States scientific reputation was both shaken and stimulated during a period of intensified scientific competition with the Soviet Union. Today, the United States has both a philosophy and an operational program which is, I believe, unique internationally: the National Institutes of Health has the legislative authority to fund those foreign investigators conducting research which cannot be performed within the United States.

The criteria and objectives for NIH international research are directed toward "excellence," and hence their programs involve the developing countries when unique scientific opportunities exist. Thus, the preponderance of NIH international involvement rests with the scientifically-sophisticated countries. However, even these direct individual or institutional scientific relationships are being subsumed on an increasing scale under formal bilateral governmental agreements. Thus, political and geographical considerations which determine and define bilateral agreements are also providing the ambience for scientific and research activities with the Communist States of Eastern Europe and with the developing world. With increased emphasis on stimulation or strengthening of research capabilities in developing countries, the role of the National Institutes of Health must be reexamined and defined.

International biomedical information activities, as executed by the National Library of Medicine, have developed differently from research and health. This may be due in part to the more tangible character of information products and services. The principle is one of sharing on a *quid-pro-quo* basis. Traditional exchanges of literature have been extended to collaborative arrangements at the technical institutional level with scientifically-advanced countries for NLM's computerized information systems. These arrangements now constitute an international biomedical communications network. How this network can be responsive to the needs of the developing world is under examination, but has not yet been determined. The NLM has encouraged and provided technical consultation and resources for the establishment of national and regional biomedical information centers. The Pan American Health Organization Regional Library of Medicine is an example of such an operational regional resource.

Research, communications, and health programs are not central to foreign policy concerns nor are they viewed as essential to economic development; they are peripheral. They are seized upon in a relatively unplanned manner in particular instances. Whether they shall ever be perceived to occupy a more core function remains to be seen. In the meantime, to ensure some effective interrelationships of foreign policy and international biomedicine and health, some pragmatic decisions should be made—at both the policy and operating levels. These decisions relate to authority, responsibility, and funding for international programs and they require a partnership within the Executive Branch and another partnership between the President (Executive Branch) and the Congress. Also needed is advanced planning in terms of what can be done effectively—distinguishing among the needs of various countries and not blanketing all with a standardized mechanism.

Motivation

The primary motivation for international activities in medical research is the generation of new knowledge, and the motivation for biomedical communications is the improved transmission of information to other health professionals. Ultimately, of course, both are applied for the public good whether in the developed or the developing world. The motivation for international health which relates primarily to the developing world may be security, peace, and/or humanitarian concerns and is time and circumstance dependent.

John H. Knowles (*6*) cited the gradual change in the traditional rationale of United States engagement in tropical medicine and international health from one of safeguarding United States citizenry abroad (diplomats, merchants, military personnel, tourists) to the protection of people in the United States from mass epidemics of imported exotic diseases. Dr. Knowles suggested that we have a global responsibility to train public health workers for and from developing countries. He proposed that increased support can and should be justified not only by United States self-interest but because we live in a "wormy world"; and the control of transmissible disease is vital to the United States. Research is needed on the cause, effect, and methods of diagnosis and eradication, and in particular on parasitic diseases—schistosomiasis, malaria, trypanosomiasis—and the development of vaccines for specific parasites.

Robert E. Asher (7) has analyzed the reasons for development assistance:

> Security: Widespread poverty and frustration are a threat to peace.
>
> Economic: Development produces jobs, markets, trade, investment, opportunities, and material benefits for virtually all concerned.
>
> Political: A broadly shared expansion of the world economy will lead to a better integrated political community with a greater stake in peacefully resolving conflicts.
>
> Humanitarian: It is right and decent; responsibility for the mitigation of poverty does not end at national boundaries and shorelines.

All of these reasons have been proffered singly or in combination over the years as justification for international health programs. They were the basis of the deliberations of the Interdepartmental Committee on International Health Policy in 1960. According to Asher, (*8*) the moral imperative is clearer than United States national interest calculated in traditional short-range terms. Technical assistance, developmental assistance, and technical cooperation (as it is currently called) have remained within the purview of the Department of State, whether the implementing agency is designated as the Foreign Operations Administration, the Technical Cooperation Administration, the International Cooperation Administration, or the Agency for International Development, Biomedical research, communications, and health within technical assistance/developmental programs have had a long and checkered history.

Cooperation with the Developing World

Federal health agencies are frequently called on by the Department of State and/or AID to engage in new programs which border on technical assistance/development/cooperation. In these cases agencies operate under the mantle of authority from State and AID and must rely on resources (oftentimes nonexistent or insufficient) from the latter agency. This lack of funds is one of the root difficulties and, more often than not, explains why programs falter and do not move as swiftly as they might. At the operational level, success has been dependent upon working relationships between the health professionals of the Public Health Service and the Agency for International Development, rather than on a clearly stated division of responsibility.

The magnitude of the task has already been noted (Chapter VII); and, with increasing pressure from outside and within the United States, there will be greater emphasis on international relationships with the developing countries. The fact that AID has the legislative authority and HEW has interests and technical competence which it wishes to apply to the developing world will continue to be a source of contention. The fundamental issue is whether health assistance should be part of an integrated health program or part of an integrated assistance program.

There are two extremes in developed/developing country collaboration. Individuals in advanced countries may believe that encouraging science and technology for development amounts to establishing modern scientific institutions in less developed countries and massively transferring modern technology to them, preferably through private channels. In contrast, spokesmen for the developing world may believe that science and technology for development will abolish all international barriers that hinder their access to the results of scientific and technological progress. Neither approach is valid nor will it be effective; the solution rests with increasing the developing world's capacity to absorb and use scientific knowledge and technical expertise. Thus, a long-term, integrated international and domestic effort is needed.

There are two major issues facing the research (NIH) and biomedical communications (NLM) institutions. The major emphasis in today's preoccupation with "international health" is health and the developing countries. Within that context, the first issue is how can research and communication contribute to well-being in the developing world, how does NIH relate, and is existing legislative authority sufficient? The second issue is how to maintain, increase and improve the integrity of research and communications collaboration with scientifically-sophisticated countries and simultaneously increase activity with the developing world. In the decade ahead, research and biomedical communications programs should be able to contribute to advances in international health globally, that is, in the developing and developed countries; but clarification of authority, determination of priorities and quantification of human and fiscal resources are needed to insure that wasteful competition does not erode existing excellence or ignore the needs of the developing world.

The renewed interest of WHO and the preoccupation of some of the developing countries with research mean that NIH will eventually be called upon to become involved directly or indirectly. The National Institutes of Health should examine its potential role vis-a-vis the developing world so that issues of authority, responsibility, decision-making, and choice of mechanisms are clear. This self-examination is important not only from a scientific but a management point of view.

NIH has had considerable experience internationally involving the International Centers for Medical Research and Training, operating the Middle America Research Unit, providing scientific direction to the Cholera Research Laboratory, and stimulating and/or supporting exchanges of professionals at all levels. NIH is currently involved in a formal Government agreement with a developing country—Egypt. NIH has had a staff member at WHO as a liaison with the Special Program for Research and Training in Tropical Diseases.

One of the greatest contributions NIH has made in this country has been to support the development of research personnel. This is an important ingredient lacking in the developing world and NIH could make a significant contribution in training medical researchers. It would be helpful if, on a selective basis, NIH had a core effort in analyzing, planning, and model-building for medical research in a developing country.

With regard to biomedical communications, the National Library of Medicine should continue to examine the problem of the developing countries and their need for information. The regional approach has proven effective in South America and was underway in the Middle East until interrupted by political changes in Iran. The concept of regionalism should be examined for applicability elsewhere. Moreover, NLM's information expertise and NIH's research expertise should reinforce each other in any proposed or continuing undertakings with developing countries.

Policies

Health is not an isolated topic independent of political, economic, and social considerations. The dynamic relationships become even more complex when an international dimension is added. Functionally, the Federal Government, the private sector (profit and nonprofit), and international organizations (governmental and nongovernmental) are all participants, oftentime collaborators, but sometime antagonists. Nonscientific considerations which vary in an unpredictable manner may become the crucial determinants of the geographic locale and the organizational entity involved in international health collaboration. These considerations intrude on the traditional scientific criteria for conducting research, providing research support, or collaborating with a peer group, and the scientific criteria may then be tempered or abandoned.

Over the past two centuries, the United States role in international health has shifted from recipient, to partner, and now oftentimes to contributor both to advances in biomedical research and health, and to funding such programs throughout the world. As has been demonstrated, United States participation in international health can be described in scientific, fiscal, and humanitarian terms, but with varying degrees of specificity. The sum of these efforts and their total impact cannot be characterized succinctly or definitively. This inevitably leads to the query—what is our policy?—or to the lament that there is no international health policy. Few remember the international health policy objectives agreed to by State, HEW, ICA, and USIA in 1960.

Moreover, there is confusion in both the meaning and the use of the term "policy." Policies are secondary to the fundamental issue of defining our goals and objectives. Once these are defined, then policies can be developed which, in effect, are the plans and mechanisms for programs to achieve objectives and move toward ultimate goals.

There may not be one policy but individual policies which in combination have the force of national policy. Existing "policies" may result from statutory authority—broad or specific—or develop *de facto* from program activities.

The strength and stability of an agency and its programs are dependent upon its major goals and objectives having been articulated in one manner or another. An area currently devoid of clearly stated long-term goals and realistic objectives for the United States is international health. Over a period of time there have been Presidential messages; Congressional hearings, resolutions, and legislation; Agency initiatives and jurisdictional struggles. However, there are no identifiable fundamental statements which are recognized and adopted as a declaration of goals toward which all processes are directed. Thus, there is no clear-cut establishment of priorities, allocation of resources, or long-range stability to the conduct of Federal international health activities.

Henry Owen, (9) in 1973, identified the following as fundamental issues of foreign policy:

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1. Where do our main interests lie?
2. What actions are most effective in supporting them?
3. What costs and risks should we incur?
4. How should they be balanced against domestic needs?

Why cannot these questions be posed as the issues of international biomedical research/communication/health.

A Look Ahead

It is possible to conclude from the foregoing analysis and review, that the pattern of the United States has been "start and stop," an uneven progress without a balance among biomedical research, communications, international health, and foreign policy. It is apparent that many of the programs have been stimulated not by the medical and health communities but by the political and foreign policy sectors. The Ministers of Foreign Policy in Latin America, within a wartime situation, recommended the first bilateral health agreements. The idea that the wartime experience of the Office of Scientific Research and Development might have peaceful applications originated with the General Counsel of the Foreign Economic Administration. The desire for peace underscored the initiatives for the World Health Organization, and more recently bilateral health initiatives are part of international agendas devoted to security or economic measures. It is not that there is a lack of interest on the part of the medical and health community, but that there is not a sustained coherent body which is successful in attracting the support of both the Executive and Legislative branches of the Government.

The current enthusiasm and ferment for international health is now facing severe fiscal constraints, following a period when we had announced to the world that there will be new health initiatives with an implicit commitment of human and fiscal resources.

What would give international research, communications and health activities stability? (1) Meaningful programs and effective performance; (2) funds; (3) commitment of people and resources; (4) opportunity for growth; (5) each level performing its own functions without intruding on the next level, either above or below; (6) assignment of proper responsibilities.

Decisions and Actions Needed

There are some decisions and actions which could be taken immediately and are not unduly complex.

First, there is existing legislation (PL 86–610) which contains authority at the Presidential level to engage in international research activities for world benefit. The President could delegate this authority to HEW on a continuing basis rather than infrequently as in the past. The distinction between United States and world benefit is becoming more diffuse and artificial, and should not be maintained in the area of international research.

Second, international health encompasses research and biomedical communications; and a distinction should be made between those programs with developing countries, and those with scientifically-sophisticated countries whereby substance and hence mechanisms may be very different.

Third, the NIH and NLM should develop some principles which achieve a balance between domestic and international efforts, and then within the international programs a distinction between the developed and developing worlds. This would be based upon the delegation of authority referred to in the first action item and the principle that United States needs are not to be sacrificed, but that both domestic and international activities can form an integrated totality.

Fourth, clarification of the relative roles of State and HEW or at least some readjustment would reduce if not eliminate the constant struggle of whether international science or foreign policy takes precedence.

Fifth, a distinction should be made of the nature of the various bilateral arrangements in terms of initiation and implementation. Institution-initiated agreements, i.e., at the NIH/NLM levels, should be those where the institution is responsible for funds and substance. Departmental-initiated agreements, i.e., at the HEW level, should be those where HEW commits funds for broadly-based health programs. Department of State-initiated agreements for political reasons should be those which State includes in its own operating budget. This would then bring Congress into the review on foreign policy matters. This is not an impossible division of program and fiscal responsibility; it requires an effort and a willingness to subject these to Congressional scrutiny for appropriation purposes. If this is not done, Agencies can look forward to more of their domestic manpower and dollar resources consumed in bilateral arrangements not of the highest program priority.

Sixth, realistic objectives should be established within goals. Consistently the plight of the individual and his need and right to the best of health have been emphasized. Lacking are the development of objectives, a time frame and resources.

Seventh, a *delegated agency* or *earned autonomy* concept should be utilized so that decision-making is at the appropriate levels *vis-a-vis* policy and program. The current emphasis on coordination can be constructive in achieving a broader perspective and an integration of the different components of international health. It will serve a most useful purpose if it will encourage (1) self-assessment by Departments of their programs, (2) an increased emphasis on reinforcement of each others activities and (3) an increased delegation of authority and operational responsibility. Increased coordination, however, may also tend to elevate decision-making to a higher administrative level and this process can be counterproductive.

Agencies should be able to assume full responsibility for operational plans and programs which relate to their own areas of expertise. The Departmental level should correlate the plans, programs, operations of its Agencies, i.e., summation and integration. Coordination rests at the interdepartmental level. Unfortunately, the term coordination is over used and little understood; it usually results in increased bureauracy.

Potential Success or Failure

Success is a relative measure. The last two years have been reminiscent of earlier days—new pronouncements, new initiatives, but without the anticipated results. The reason is that the obstacles preventing increased dedication and commitment to international health, research and communications are not being removed. The proposed "solutions" are more decorative than they are elemental. The paramount task facing this country in international cooperation will be that with the developing world, whether in research, communications or health. This involves three issues which must be resolved—the relationship of domestic to international programs; the integration of health assistance programs with overall health programs; and the struggle for primacy between international health and foreign policy.

These issues relate to (1) the structure of Government within the Executive branch and between the Executive and Legislative branches and (2) whether the Government is organized to perform the necessary functions. The competitively destructive nature of these relationships is evident in some of the history recounted here.

The outlook for any vital changes is dim. There have been calls for new partnerships between the President and Congress in areas far more complex than the subject of this study. This partnership has existed in the past in the face of tight budgets and fiscal constraints and succeeded in the rebuilding of Europe after World War II. President Truman mobilized moral and financial support within one year for the passage of the European Recovery Act on April 3, 1948. Under this Act, the United States provided $13 billion (1948–52) to restore European countries to a better economic and financial status. That mobilization effort represented a commonality of Congressional and Executive purpose. At this time, such a commonality of purpose is needed not only in the Government sector but in a cooperative undertaking involving the scientific and private sectors. The alternative is that the United States will lose an opportunity to advance international health, will reduce its leadership role in furthering humanitarian programs, and may become more of a responder than a leader.

It is well to draw upon the experiences of the past as one plans for the future.

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APPENDIX I

Individuals With Whom Discussions Were Held During the Course of Performing Research for This Study

(Affiliations listed were positions held by these individuals during the period of January 1, 1977–July 1, 1977. Where previous positions were pertinent, they are so listed.)

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APPENDIX II

Statutory Basis for International Biomedical Research and Communications

National Institutes of Health and the National Library of Medicine

Legislation which provides the authority for HEW international biomedical research and communication activities: the Public Health Service Act (PL 78–410) as amended; the National Library of Medicine Act (PL 84–94); the Mutual Security Act of 1958, as amended (PL 85–477); the International Health Research Act of 1960 (PL 86–610); the Agricultural Trade Development and Assistance Act, as amended (PL 83–480); and the National Cancer Act of 1971 (PL 92–218). The salient portions of these acts are as follows:

I. *PUBLIC HEALTH SERVICE ACT* Section 214 (42 U.S.C. 215), Sections 301, 308, 315 (42 U.S.C. 267)

Public Health Service Act (PL 78–410 as amended) is used to justify research grants to foreign institutions and international organizations, international doctoral fellowship programs, foreign fellowship programs, visiting scientist programs, international centers for medical research and training.

1. Foreign Fellowship Programs—Sec. 301 (c), Sec. 308 (b)
2. Visiting Scientist Programs—Sec. 308
3. International Centers for Medical Research and Training—Secs. 301 and 308
4. International Doctoral Fellowship Programs—Secs. 301 (c) and 308 (b)
5. Research Grants to Foreign Institutions and International Organizations—Sec. 308 (a)

II. *INTERNATIONAL HEALTH RESEARCH ACT (PL 86–610)*

This Act provided no new legislative authorities for the National Institutes of Health, but reinforced specifically the ability to provide research grants to foreign institutions and international organizations. Presidential delegation of authority is needed to engage in research for world benefit.

III. *The NLM Act, (PL 84–941)*

This Act authorizes the collection and dissemination of health information.

IV. *THE NATIONAL CANCER ACT OF 1971 (PL 92-218)*

This Act contains specific provisions for the support of international activities: research; collaborative research involving American and foreign participants; the training of American scientists abroad and foreign scientists in the United States; collection, analysis, and dissemination of information about cancer, including the establishment of an International Cancer Research Data Bank.

V. *AGRICULTURAL TRADE DEVELOPMENT AND ASSISTANCE ACT OF 1954 (PL 83–480)* c. 469, title I, 104, 68 Stat. 456;

This Act is in contrast to the broad general statutory authorizations and underlying powers of the Surgeon General of the Public Health Service. The Agricultural Trade Development and Assistance Act, as amended, PL 83–480, authorizes special foreign currency funding for international medical research, studies and translations (Sec. 104 b-3) and for the collection and dissemination of health information in foreign countries (Sec. 104 b-3).

"Notwithstanding section 724 of title 31 or any other provision of law, the President may use or enter into agreement with friendly nations or organizations of nations to use the foreign currencies which accrue under this subchapter (sales of surplus commodities for foreign currencies) for one or more of the following purposes:

"(k) to collect, collate, translate, abstract, and disseminate scientific and technological information and to conduct and support scientific activities overseas including programs and projects of scientific cooperation between the United States and other countries such as coordinated research against diseases common to all of mankind or unique to individual regions of the globe, but no foreign currencies shall be used for the purposes of this sub-section (k) unless specific appropriations be made therefore."

VI. *MUTUAL SECURITY ACT OF 1958 (PL 85–477)* § 502(m), 72 Stat. 261; 7 U.S.C. Supp. 22:290e

The Committee on Foreign Relations wrote into the Mutual Security Law of 1958, a "declaration against the diseases of mankind" which specifically referred to the World Health Organization. "The Congress of the United States, recognizing that the diseases of mankind, because of their widespread prevalence, debilitating effects, and heavy toll in human life, constitute a major deterrent to the efforts of many peoples to develop their economic resources and productive capacities, and to improve their living conditions, declares it to be the policy of the United States to continue and strengthen mutual efforts among the nations for research against diseases such as heart disease and cancer. In furtherance of this policy, the Congress invites the World Health Organization to initiate studies looking toward the strengthening of research and related programs against these and other diseases common to mankind or unique to individual regions of the globe."

This action was taken by Congress on the 10th Anniversary of the founding of the World Health Organization and on the occasion of WHO's World Health Assembly Meeting in the United States.

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*The following abbreviations are used:

AID	Agency for International Development
NIH	National Institutes of Health
NLM	National Library of Medicine
PAHO	Pan American Health Organization
PHS	Public Health Service
WHO	World Health Organization

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